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ABSTRACT

Through review of literature of biology, psychology, and education, critical needs were identified for human development and a theory of education was synthesized to meet these needs. The consequent Structure for Self-Directed Education (STRUSD Education) was operationalized as Treatment A and tested in an educational psychology course. STRUSD Treatment A employed an authoritative structure oriented toward enhancing self-direction. It consisted of 1) two one-half-hour individual counseling sessions, 2) five small group meetings, 3) whole class meetings with discussions and talks by visitors, 4) departmental sessions of special film and guest programs, 5) authoritative structure of attendance and work reports, 6) a work report procedure in which students must choose their own study experiences and must report their learning experiences regularly. In the research, STRUSD students were compared to control groups and to other concurrently taught, equivalent classes. Results showed that although STRUSD students did not develop a significantly more positive attitude toward educational psychology, they did have significantly greater increase in Assertive Self Assurance and Adaptive Autonomy as measured by the California Psychological Inventory and of Freedom Orientation as measured by Runners' Interview Form III. They also scored significantly higher on the Departmental Evaluation of Achievement. (Appendixes contain materials describing the course, case histories, and evaluations by students.) (Author/RT)

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DEVELOPMENT AND ACHIEVEMENT EFFECTS OF A TEACHER-DIRECTED STRUCTURE FOR SELF-DIRECTED PROCESS OF EDUCATION

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by

HERBERT A. ALF

B. A., The University of California, 1948

M. F. A., The University of Iowa, 1961

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Chapter 1

THE PROBLEM

INTRODUCTION

To respect a problem, as an opening to a study, is to make testament for the experience of tension between what is and what could be. At this point, every scientist is an artist. The only valid support for his "problem" can be his vision of the "good life" possible for man. In this context the present researcher frames the problem of an inhospitable world fostered by people who irresponsibly abdicate control of their lives to the system in which they happen to live. In the "could be" world of this problem, people would think for themselves and follow through with lives that create the kind of world they believe in.

In applying educational psychology to the attack of this problem, we arrive at the question of how education may better assist the development of such self direction. The present research explores the effect of a structure of education specifically designed to encourage this kind of individual responsibility.

In a broad sense, the structure designed and tested here is no new invention. It has a rich research history under the terms creative education and independent study. It also has a rich, though more sparse, literature under the terms self-help education (Leonard, 1968), humanistic education and existential education (Morris, 1966), psychogenic education (Read, 1945), and diverse other titles reaching back to the Socratic paradigm in the mode of The Republic. The innovation studied here is but an eclectic borrowing from the work of others, for a specific purpose.

The purpose of the present study was to test a synthesis of a Teacher-Directed Structure (TDS) designed not just to permit Self-Directed Process (SDP), but to encourage it actively. It was decided to test the structure in a program of teacher education, Educational Psychology 304, a required undergraduate course of teacher education at the University of Georgia. This plan offered the two-fold possibility of (1) assisting the creative development of students, and (2) introducing teachers-to-be to an attempt of encouragement of self direction in a school setting. Thus, the project promised to bear an impact on the self development of both the students going into teaching and the students they in turn would face. With such promise offered, it seemed appropriate to study the TDS-SDP synthesis in a program of teacher education.

The resulting Teacher-Directed Structure for Self-Directed Process of Education (TDS-SDP) treatment is also called STRUSD Education, for Structure for Self-Directed

Education. Salient features of STRUSD Education are presented early in this writing; further details are offered in an appendix.

STRUSD Education was tested in a 5-quarter-hour course conducted concurrently with a control course using conventional lecture methods. The test was then replicated. The results were evaluated and interpreted in relation to the problem of fostering greater self direction through the experience of education.

The experimental treatment was expected to yield cognitive gains equivalent to those of control sections of the course. It was further expected to yield specified concomitant affective gains that the control sections were not expected to demonstrate.

The unique aspect of STRUSD Education, as separate from other forms of self-directed education, is that it attempts to act as a transition structure between authoritative and self-directed systems. It presumes an entering student body conditioned to an authoritative educational structure. It maintains limited authority for the purpose of exerting pressure for greater self direction. Such an approach is remarkably absent from the literature of self-directed education. Yet, the prevailing psychology of our time respects the importance of transitional conditioning in effecting change from one adjustment to another. It would appear that it is unsound psychology to attempt a change to self-directed education without transitional conditioning, but this need seems to have been neglected in experiments attempting self-directed education to date.

The researcher intuits why the need for transitional conditioning has been neglected; for he, himself, resisted the use of such a transitional structure for years and then only came to it through the help of chance happenings that forced him beyond his usual mental set. In his case, preference for self direction simply prejudiced him against the use of authority where it was needed; the use of authority to promote self direction was unthinkingly rejected as an impossible contradiction. Here the contradiction is accepted and developed as STRUSD Education, a paradoxical construct analogous to shooing chicks from their nest.

NEED FOR THE STUDY

In recent years, a self-help movement has begun to generate in American society. Self-help organizations are beginning to function in a great variety of human need areas. There is evidence that this trend is a reaction to the dehumanizing forces of our time (Leonard, 1968).

A corresponding student-power movement is under way in the academic world. The student movement declares for many kinds of human rights, but the various specific demands seem to share a theme of revolt against being told what MUST be done; the insistence seems to be that each has a right to live his own life and to let other people live their own lives. Such a mood is ill-contained by schools which impose a rigid program without consulting with those who have most to gain or lose under the program, the students (Bigelow, 1969).

A new education of self-directed learning process is beginning to emerge from the climate of student unrest. The new generation of the much advertised generation gap is clearly saying, "No!" to the era in which one denied oneself personal preference, creative indulgence, and idealistic commitment until such time as self direction was practical.

One might speculate that in the situation of today's college turmoil, the greatest amount of research of the possibilities for more self direction in education would be taking place at the college level. This is not so. This study's review of the literature shows that most of the experimentation with structures for self-directed education at this time is taking place at the high school and lower grade levels.

If it is true that teachers tend to carry into practice in lower grades the innovations that they enjoyed in college, then we cannot expect many to introduce structure for self direction in their teaching until teacher education programs include at least some experience in self direction. But education colleges still tend to avoid such experimentation. Colleges are still turning out teachers who are not acquainted with the new education possibilities offered by self-directed learning process.

Dissenting students sometimes suggest that only violence can bring progress to university life. They argue that universities will remain backward bastions until students force policies of less concern for institutional status and more concern for service in behalf of the needs and dreams of students. Though some educators might disagree with this position, only those who have not been reading the newspapers would say that there is no serious pressure for greater student control of their education. The point of calling attention to the confrontation here is to emphasize the immediacy of the need. Educators must learn how aspiring college students may best be served in this era of computers, teaching machines, and television, and in this ferment that puts increasing importance on self direction. The present study seeks to offer a limited contribution to the major research effort that is needed. ✓

As one begins to explore the state-of-the-art as of now, another level of needs, to which this study relates, come to attention. First, there is a need for more sensitive ✓ and definitive terminology. (1) Individualized education is sometimes advanced as self-directed education when, actually, it may be a most self-restricting kind of program that is individualized. As is later documented in this study, some education that is focussed and programmed on an individual basis is oriented toward reduction of self direction and acceptance of authoritative direction. ✓(2) Student-centered education is sometimes advanced as self-directed education when, actually, the dichotomy drawn upon may be subject-centered versus student-centered (without defining whether the student-focus is a tyrannical or a service relationship). ✓(3) Student locus-of-control is sometimes advanced as self-directed education when, actually, there is evidence that students conditioned to an authoritarian structure may use their power to resist assumption of self direction; they may return the power to the authority or establish a substitute tyranny of the majority so as to continue the self-restricting structure to which they are conditioned (Curry, 1970). ✓ (4) The abdication of teacher direction is sometimes advanced as self-directed education when, actually, it may define the absence of any direction if it goes no further; or it may define the assumption of direction by aspiring authoritarians of the class. (5) In the crudest examples of the terminology problem, the above distinctions are not sufficiently respected to see the need of qualifying the term structure at all; self direction is presumed to be advanced in inverse proportion to the mere denial of structure, as a quantity, in education. The present work seeks to frame a more precise language for working with self-directed education.

A second need to which this study relates is that of structure-design for self-directed education. Some of the features of the STRUSD treatment have already been mentioned. STRUSD Education is but one of many designs that are possible. A great deal more testing of possibilities is called for.

A third need to which this study relates is that of evaluation capability for self-directed education. This has been a particularly difficult problem in educational psychology for the following reasons: (1) Since the student is given the freedom to choose, tests of course gains are likely to miss much of what he has chosen to gain in his course involvement; his objectives cannot be predicted for measurement purposes. (2) When the concern is for the whole person rather than just for cognitive acquisition, valid measures of personality change are also required, which limits evaluation capability in a dimension apart from and in addition to the first mentioned open-curriculum limitation. This calls for further refinement of personality instruments and more sophisticated utilization of personality research in evaluation programs. The present study seeks to take advantage of research and instrumentation available at this time.

The evaluation was particularly facilitated by the California Psychological Inventory (CPI) (Gough, 1957). The value of the CPI was increased by the thorough, recent research of Parloff, Datta, Kleman, and Handlon (1968).

And on the immediate scene, the concurrent research of William L. Curry with the same population provided needed structure. These debts are here acknowledged to communicate the critical importance assigned to evaluation. The teacher of self-directed education may feel that self-directed education includes self-evaluation, thus decreasing the need for institutional evaluation. But self-directed education has not yet won such acceptance. Therefore, means must be found for quantitatively measuring the individual gains of self-directed programs in comparison to the conventional education. The researcher refrained from attempting this study for several years because of the evaluation problem. The decision to proceed now hinged upon the possibility of empirical, irrefutable evaluation.

However, it is not claimed that what was done was measured. It may be that more was missed than was measured. The evaluation program lacked the benefit of a tested and proven model from previous work. Research is scarce with regard to the concern of this study with personal-development effects associated with transition to a self-directed educational process. But in a limited way some measurement of development and achievement effects was accomplished. To this extent, it may be said that the study assisted solution of the evaluation problem.

SIGNIFICANCE OF THE PROBLEM

D. N. Bigelow (1969), Director of College Programs, U.S. Office of Education, Department of Health, Education and Welfare, documents such strong pressure for change in higher education that he calls it The Fourth Revolution, following the revolutions of America, France, and Russia. As a student and teacher in higher education over the past twenty years, the researcher has lived with the growing, critical need for change in teacher-student and student-student relationships. E. P. Torrance (1965b) offers that it is time that we relax our concern for what we can cram into students and become more concerned with what we can get out of them.

New educational modes in higher education such as that of San Francisco State Experimental College are significant as studies of what is possible. As San Francisco State Experimental College bulletin reads, "The idea is that students ought to take responsibility for their own education . . ." (Leonard, 1968, page 222).

The self-help movement of the larger American culture offers guidance as to what might be expected from self-help innovation that education might institute. G. B. Leonard (1968) quotes Farson, Director of Western Behavioral Sciences Institute, as saying that we have missed the greatest resource we have for solving social problems, the very population that has the problem. As example, Farson indicates that research of self-help encounter groups reveals results comparable to professional therapy. He further reports superior results of employing convicts as opposed to correction officers in conducting rehabilitation programs. And he cites the remarkable program of Synanon, the fast-growing, revolutionary organization founded by Charles Dederich in 1958, as it treats drug addicts with an approach that borrows from the self-help methods of Alcoholics Anonymous. Then he speculates that the true meaning of such movements as Black Power may relate to their self-help character as a means to self respect. In all, Farson estimates that more than 1,000 different self-help organizations have begun to function in the United States.

Leonard surveys the effectiveness of self-help attacks upon human problems, and he concludes that if we take self-help methods into education we may inspire people to reach higher levels of living. In the integration of self direction with school practice, Leonard sees significant possibilities for a renaissance of education as life-long, joyful engagement, defining the quality of life itself in the twenty-first century.

Leonard's vision of a possible renaissance associated with joyful self direction is not the simplistic kind of analysis that may be read from the surface of his statement. It is vital that the surface be penetrated in order to bring to full dimension the significance of the problem attacked by the present research and the deeper need for this study. Leonard is telling of a fundamental change taking place in the philosophy guiding modern man. The prediction for education is but a reflection of an expected deeper and more all-embracing change in Western man's vision of the good life.

It is beyond the scope of this writing to trace the history of how Western man arrived at the philosophies which dominate in what the new generation calls the system today. Philosophical literature thoroughly covers this subject. Van Cleve Morris (1966) is among the scholars who analyze the effect of these philosophies upon education. Of course, the major influence of recent time has come from the scientific philosophies.

The influence of science, put into practice in schools, is discussed by Morris as Experimentalist Education. Review of on-going research reveals that this education is currently exploring in the direction of individualized instruction, an externally controlled program to which the individual is submitted for change to certain predefined behavioral objectives. Such an end is abhorrent to those who have come to reject the system.

Morris also traces and describes Existentialism, which has been a growing influence in Europe since the turn of the century and is now an ascending influence in the United States. Most importantly, Morris details the nature of the impingement between the prevailing forces of Experimentalism and Existentialism in United States education. The researcher does not attempt that task here but, rather, assumes knowledge of the nature of this impingement and discusses the relationship of this research to it.

It may bear repeating that Existentialist Education is but one term that is used by proponents of self-directed education. As given on page one, some other terms for the new education designs that oppose Experimentalist present-day negation of self-direction are: creative education, independent study, self-help education, humanistic education, and psychogenic education. All of these terms denote an education at opposite polarity from individualized instruction. As said, the new education emphasizes personal freedom, that is, individual control and responsibility over one's own life.

Viewing the present research in the perspective of this philosophic crossroad, self-directed education may be seen as a demand for a new way of life (or, perhaps more accurately stated, a return to an old way of life). This new life-style is compelled by philosophic choices not by mere discovery of observable advantages as here recorded. It is the life-style of the man who has replaced the external control of the system with internal control of his own life, regardless of what price or profit he may learn is associated with his gained freedom.

The scientific philosophies impose no demands of internal or external control of one's person. All that is asked by science is that the individual should respect external, empirical information in decision processes. A central precept of science is its negation of a fixed position, its structure of openness to change. The scientist who takes his professional orientation into his personal life is open to acceptance of self direction if it can be established by his scientific criteria that such a life-style better promotes the human growth defined by his personal convictions to be the good life.

In other words, there is nothing inherent to the Experimentalist philosophy that holds the scientific educator to a direction such as individualized instruction if it can be established that by his criteria Structure for Self-Directed Education is more profitable. The only philosophical imperative of the experimentalist is to be compelled by the substance of research data in organizing his direction. Though Existentialism does not lead to Experimentalism, Experimentalism may lead to Existentialism. If and when this happens it makes for a New Experimentalism in which the demands of Existential respect for self direction in education are promoted, until such time as something better comes along. It may be that the flexibility of the Experimentalist will eventually move him to the position of the committed Existentialist or back to the Old Experimentalism, but, meanwhile, we have a condition of openness prevailing--a healthy climate for development of the renaissance of joyful learning that Leonard predicts to be possible.

The fact that the present experimentalist project is the work of a humanistically oriented psychologist is empirical evidence in support of the above analysis. This research serves as a form of personal dialogue for the researcher, keeping the polarities of internal and external control in balance. It seems to the researcher that the dialogue this research affords with proponents of individualized instruction may promote a similar kind of balance for the advancement of education. The essay by C. P. Snow (1959), Two Cultures and The Scientific Revolution, expands the imperative of this kind of communication; his message has brought world attention to the crisis of communication to which the present research directs itself.

Regardless of communication needs, it is understandable that the literature offers educators little scientific information as to the development and achievement effects of structures for self-directed study. There are many difficulties that limit the possibilities of obtaining sound results from such research. The present study attacked the difficulties, not because of unique invention nor naive enthusiasm, but because of the significance of the problem and the need for the study. The research conducted was thus as much problem-oriented as means oriented. This is in keeping with Maslow's (1954) appeal for research that seeks means to study defined problems instead of defining problems that can be readily investigated with established means.

OBJECTIVE OF THE INVESTIGATION

This study intends to measure development and achievement differences between students under a Teacher-Directed Structure for Self-Directed Process of Education and students under Teacher-Directed Structure for Teacher-Directed Process of Education.

It may be noted that the design calls for a closed structure. That is, the teacher is to keep complete control of the course structure. This allows examination of the quality of the structure created by the teacher, without confounding the results with the variable of the quantity of structure created by the teacher rather than the students. The study avoids the question of the effect of student control of class structure versus teacher control of class structure. The question of locus-of-control is studied by Curry (1970) with the same population and at the same time as the initial phase of this present research. Comparison of the results of the present research with the Curry research is facilitated by the fulfillment of the closed structure criteria met by three groups of the Curry study. The comparison of results of the independent and yet related Curry and Alf research is expected to enrich the interpretation of research results of both studies.

The development and achivement effects researched were cognitive achievement, Control Orientation, Freedom Orientation, Adaptive Autonomy, Assertive Self assurance, and positive attitude toward educational psychology. These variables were chosen for evaluation because of their relationship to creative effectiveness and superior teaching. Annotated diagrams of the principle profiles used for evaluation of development effects are presented in Chapter Three. It is the object of the study to evaluate the comparative differences between self-directed and teacher-directed education with respect to the selected variables. Though cognitive and affective factors are separated for the purpose of communication, in final interpretation, results are evaluated in terms of growth dynamics with no dichotomy separating mentality and personality.

HYPOTHESES

I. Teacher-Directed Structure for Student-Directed Process students will measure significantly higher than

Teacher-Directed Structure for Teacher-Directed Process students in the development of specific positive attitudes toward the field of educational psychology, as measured by post-course affective ratings of educational psychology.

II. Teacher-Directed Structure for Student-Directed Process students will measure significantly higher than Teacher-Directed Structure for Teacher-Directed Process students on (A) pre- to post-course elevation on the Adaptive Autonomy and Assertive Self-assurance factors of Parloff *et al*. CPI analysis, and (B) pre- to post-course elevation on the Freedom Orientation score and reduction on the Control Orientation score of the Runners' Interview Form III.

III. Teacher-Directed Structure for Student-Directed Process students will measure as high as Teacher-Directed Structure for Teacher-Directed Process students on the Departmental Evaluation of Achievement measuring mastery of the body of factual information of Educational Psychology 304.

IV. Teacher-Directed Structure for Student-Directed Process students will measure as high as the mean of the other classes of Educational Psychology 304 (EPY 304) concurrently taught and equivalently evaluated on the Departmental Evaluation of Achievement measuring mastery of the body of factual information of EPY 304.

Chapter 2

REVIEW OF SELECTED LITERATURE

INTRODUCTORY PERSPECTIVE AND HISTORY

Since the research treatment is a synthesis that borrows broadly, an exhaustive review of pertinent literature would, no doubt, exhaust both the researcher and the reader. This review employs the source material that contributes most to the synthesis of a theory of self-directed education.

In defense of the broad format, the researcher draws upon the Honor School of Psychology, Philosophy, and Physiology of Oxford University (1959). The school invites degree candidates with the following stipulation: "A good psychologist must be, in the broadest sense, a humanist; at the same time, he must have a first-hand knowledge of the experimental and statistical methods on which modern psychology is built . . ." (Oxford University Bulletin, 1959, p. 161).

The researcher respects the Oxford perspective, in the broadest sense, in setting the scope of significant literature for this report. The presentation calls attention to pertinent issues and recent research, but reader knowledge of research and information usually familiar to educational psychologists is assumed.

In the present one-world awareness that includes Asia, it seems appropriate to avoid the Western World cliché historical opening that begins with the Greeks. This review begins with a quote from a Chinese philosopher, Laotse, who, in the century preceding Socrates, offered a theme that is supported in the review to follow:

> The people have need of what they can depend upon:
> Reveal thy Simple Self,
> Embrace thy Original Nature . . .
> Check thy selfishness,
> Curtail thy desires.
> (Laotse, Lin Yutang, ed., 1942, p. 592)

In Laotse's philosophy we find the paradoxical constructs of contemporary Existentialism couched in expression that somehow integrates the opposites. Central in his teaching is the importance of the keeping of the original simplicity of human nature free from over-government, subject to non-interference. As the above prescript emphasizes the value of self direction, we are at the same time reminded of the value of humility, quietude, and calm, as well as the folly of pride, egotistical assertion, and force.

Laotse's concern for individual freedom as the privilege of fulfillment of human innocence is voiced again and again in the history of education (Read, 1945, 1959). That Laotse's values have, nevertheless, not triumphed in the West is evident from the social comment of Herbert Read. Read details how, ever since the Middle Ages, Western education has been the process of imparting intellectual prejudice. He proposes that the vehicle of this process has been memory, which has become distinguished as the means to "education." One might safely predict that Laotse would call the students of such a system the victims of over-government.

With apologies for the Western efficiency that limits Eastern literature to a single inclusion, the review moves to Aristotle and his emphasis on the importance of choice in the process of education, ". . . for by choosing what is good or bad we are men of a certain character . . ." (Aristotle, Ross Translation, 1941, p. 1053).

However, Aristotle thought it inappropriate to extend the choice process to childhood education, since "both children and the lower animals share . . . acts done on the spur of the moment . . . not as chosen" (Aristotle, 1941, pp. 967-968). Aristotle held that it was the characteristic of adolescence to develop the ability to choose and, thus, hopefully, to develop the "right" kind of habits and in the long run the right kind of character. The point made was that by the act of choosing, the adolescent actively participates in his own character formation. Voluntary and deliberate choice thus was an important factor for the attainment of mature adjustment patterns in Aristotle's theory of development. This idea is again echoed by Herbert Read in his contemporary theory for education, intimacy-choice-action, an approach respected in the present research treatment.

In regard to Aristotle's theory, Margaret Mead and Edgar Friendenberg are among modern scholars who say that present day education reduces the choice opportunity for growing youth and thus interferes with their self development to maturity (Muuss, 1962).

With the re-awakening of Classic thought in the Renaissance, Aristotle's thinking was borrowed and extended by the Great Didactic of John Amos Comenius, 1592-1670 (Comenius, Keating Translation, 1923). However, Comenius offered a theory of education which subtly moved away from self direction to individualized instruction. Comenius suggested school organization based on assumptions concerning the nature of human development. He recommended organization that closely resembles schools in parts of the United States today. His prescript was to ". . . observe how the faculties develop one after the other, and to base our methods on this principle of succession" (Comenius, 1923, p. 257).

In the Comenius concern with what children can do, know, and are interested in at each stage of development, the responsibility for education was passed from the student to the educator. The assumption made was that the educator is more capable than the student in deciding what is the most appropriate learning experience at a given time. The education that resulted was student-centered, but not student-directed. The Comenius equivalent of self direction, which he included in the faculty of will, was proposed to be first trainable at university level.

In other words, The Great Didactic, firstly, established the historical roots for the kind of schools that today are turning out high school graduates who lack self direction. Secondly, Comenius proposed a university education that would enhance self direction. Comenius thus proposed an education that begins with individualized instruction and ends with self direction. Though he travels a different route to arrive at college, it is interesting that his proposals for universities include training in self direction, in the spirit if not the manner of the present investigation.

Jean Jacques Rousseau's work of the 18th century yields further derivatives of Teacher-Directed Structure for Self-Directed Process of Education. Though he, like Comenius, was development-oriented, he held that the persons most capable of advancing the development were the students undergoing the growth, not the educators holding the power over them. This theme, voiced in Emile, had impact upon late 18th and 19th century education and was later reflected in the works of Pestalozzi, Froebel, Basedow, Spencer, Horace Mann, and John Dewey (Muuss, 1962).

Because of later reference in this writing, it is also pertinent to note Rousseau's advancement of the theory that the ontogeny of an individual recapitulates the phylogeny of its group: the "fundamental biogentic law" of Haeckel (Webster, 1960). This recapitulation theory is supported by observable facts in the development of many mammals, but variables of individual development limit comparison between ontogeny and phylogency. Rousseau employed the recapitulation theory to relate stages of individual development to corresponding stages in the development of the human race. Animal, savagery, reason, and social and emotional maturity stages were framed. The theory was later extended by such educators as Froebel and Ziller as well as by G. Stanley Hall (Muuss, 1962). Hall's (1916) "psychological theory of recapitulation" went beyond the evidence to negate the importance of environmental influences upon individual development. Hall's kind of speculations beyond observations brought about a reaction against recapitulation theory as a scientific explanation of certain aspects of growth phenomena. Because recapitulation theory relates to the synthesis of the theory of self-directed education generated in these pages, it is noteworthy to reflect that the early 20th century rejection of the "psychological theory of recapitulation" may have rejected too much in its enthusiasm to countermand the theoretical formulations beyond the evidence (Lewontin, 1967).

From Rousseau's work, the review of literature of self direction moves to more recent time in which it is classified for the furtherance of systematic communication. Literature of life-science and education are separately reviewed in the sections to follow.

CONTRIBUTORY LIFE SCIENCE THEORY AND RESEARCH

A Global View of the Crisis in Human Development

It is nonsensical to wax forth with proposals for education without first examining the fundamental process which brings man to seek education. Man is only one instance of observable life, and life is only one instance of the observable from which man may gain insight as to the desirable. To arrive at theory in which the parts are in harmony with the whole, it would seem advisable to proceed from the global questions to the particular details in question. Such an attack offers to reduce confusion as to plan and purpose when the focus is narrowed to the parts. The Jesuit priest Pierre Teilhard De Chardin applies this principle as he writes, "We must try, if possible, to build a bridge, or at any rate the skeleton of a bridge, between physics and biology" (Teilhard De Chardin, 1956, p. 17).

Teilhard's works are a noteworthy contemporary attempt at integrating global questions with scientific observations. At one point he classifies two series or types of conditions with regard to man's destiny that determine "the planetary evolution of consciousness." First, there are the external conditions of a planet that must be inhabitable for mankind to continue to evolve toward maturity. Second, there are the internal conditions that are bound up with the functioning of individual liberty; these are subclassed as two variables shaping man's destiny; the know-how to do (which the researcher terms man's expertise), and the will to do (which the researcher terms man's creative energy). Teilhard studies both external and internal possibilities and concludes that the future of mankind is most severely threatened by internal conditions. Above all, Teilhard sees peril to be associated with reflective liberty as an indispensable factor of evolution and yet a dangerous possibility of undisciplined emancipation. The words echo the Laotse theme offered 2,500 years previously. The content of education may be expected to improve man's control over the external conditions affecting his history. However, literature relating education to external conditions is not included in the present review so that fuller attention may be given to what the researcher, along with Teilhard, feels is the crisis area in man's present history, the realm of internal conditions determining man's future.

This review also gives little attention to the expertise variable of internal conditions influencing man's future. The expertise variable is not emphasized in this theoretical synthesis because mankind has already developed this capability to the point at which it could result in destruction of all life on this planet, or, possibly, the advent of an era of affluence for all people. The development of expertise, of course, remains an important aspect of education, but the critical factor that is to determine which way the expertise will be applied resides in man's inner life, the domain of his destructive and creative energy. Thus, the present synthesis of a theory of education centers its focus on man's inner life.

There is both a sociological and a biological basis for the above generalizations with regard to contemporary crisis in man's educational development. The matter is sufficiently important to a theory of education to bear documentation that discusses critical factors in man's history. Freedman and Rol (1958) discuss the sociological problem in an article _Evolution and Human Behavior_, which describes man's unique evolution of capability to end his own social-evolutionary progress with his destructive inventions. Freedman and Rol propose the working hypothesis that man's evolutionary endowment, successful though it has made him, contains within it hindrances to his social evolution as well as self-destructive potential. The researcher agrees with their position that the support of the hypothesis does not need to be demonstrated to a generation huddling under the hovering H-bomb.

The biological aspect of man's development of cognitive powers is treated by Koestler (1967). In a chapter entitled "The Three Brains," Koestler offers that evolution is at least partly subject to trial and error; and that man, who is superior to any known animal species, may nevertheless have a serious fault in the circuitry of his most precious and delicate instrument--the central nervous system.

Koestler's support of this statement runs as follows: We may observe empirically that nature can make mistakes in brain development. Among such errors of evolution is the brain location of arthropods (a phylum consisting of animals with jointed limbs) which does not allow for further growth without compressing the alimentary tube (Gaskell, 1908). With the highest scorpion and spider-like animals this error of food-tube constriction is so acute that the whole group have become blood-suckers. Other authorities (Wood, Jones, & Porteus, 1928) agree that the development of brains around the esophagus was a fatal evolutionary error that can only lead to phylogenetic death. Another start must be made. The lesson of possibilities for the human species is clear.

The speculation in regard to possible error in human brain development relates to what Roberts (Wheeler, 1928) calls a sort of tumorous overgrowth of the human cortex that causes erratic cognitive function beyond developmental control, like a steam engine that has lost its governor. Herrick (1961) points out that such a view may make sociological sense in view of man's history of self-destruction, but the assignment of the cause to size of the cortex alone is neurological nonsense.

Koestler discusses the results of contemporary research that answers the Herrick criticism. He says that it is not size but the insufficient coordination between phylogenetically old and new areas of the brain that is thought to account for differences between emotional and intellectual behavior (MacLean, 1958). MacLean (1964) reports that while intellectual functions are carried on in the newest and most highly developed part of the brain, affective behavior continues to be governed by a relatively primitive system.

MacLean explains that man's predicament results from the fact that nature has endowed him essentially with three brains which, despite great difference in structure, must function together and communicate with one another. The oldest brain is basically reptilian. The second brain has been inherited from lower mammals, and the third brain is a late mammalian development. The suspicion of a possible error in this central nervous system relates to the extraordinary rapidity of its evolutionary growth, greatly exceeding the rate recorded in any anatomical character in lower animals (Le Gros Clark, 1961).

Until recently it was thought that the human brain underwent its explosive evolution in the geologically short time of about a million years. In 1956, C. Emiliani, using a new dating process employing Oxygen 18, arrived at a new estimate of the time period involved in man's evolution. Putting all the new evidence together, it now appears that man's brain was evolved from South African man-ape properties to modern man properties within the period from 5000,000 to 150,000 years ago (Eisely, 1958). Such further knowledge of the rapidity of brain development emphasizes even more the predicament of modern man that MacLean interprets from his brain research.

This report limits itself to this small fraction of recent research relating to man's brain function. It is hoped that the inclusions communicate the importance of research of brain function in the synthesis of a theory of education. Educators who ignore such findings of larger life-science may be, in Teilhard's language, the carriers of "man's greatest peril."

Koestler (1967) summarizes that the Papez-Maclean theory (MacLean, 1962) offers strong evidence that a schizophysiology is built into the human species, providing the physiological basis for the paranoid streak running through human history and pointing to the need of search for remedial development.

The cortex research literature communicates evidence that education oriented solely toward cognitive development is ill-advised today. If this scientific literature is to be respected, it is highly ill-advised to educate solely for specialized cognitive powers that leave the individual as an instrument without corresponding personality development to integrate the expertise trained. This kind of education enhances the native imbalance of man without doing anything to help him with his biggest biological problem, his need to integrate his cognitive functioning with his emotional functioning. Observing from this perspective, one is compelled to conclude that most American education is serving mainly to hasten the phylogenetic death of the species.

The review is narrowed on the basis of what the above evidence seems to indicate to be of first priority in the synthesis of a theory of education. Teilhard calls this priority the "will to do." Here the focus is framed as a category of current terminology of education: the affective domain (Krathwohl, Bloom, and Masia, 1956). This scope will be maintained throughout the various sections of the remainder of the review. It may afford a more global perspective to note that the priority we thus establish for the synthesis of a theory of education today seems to extend back at least 2500 years for some educators. ". . . Reveal thy simple self . . . Check thy selfishness . . ." (Laotse, 1942, p. 592).

Life-Science Ramifications of 20th Century Scientific Breakthrough

The reader sensitive to historical issues of psychology may conclude that in restricting the scope to the affective domain this review has moved past mind to body in the mind-body dichotomy. Such conclusion is an error that deserves to be corrected since the present research is primarily concerned with the affective domain. The researcher uses the term "affect" synonymously with "personality." The position is held that the affective domain can not actually be split away from the cognitive domain for separate attention, and vice versa. The intention of the present research is merely to structure and evaluate a relatively more affective emphasis in education. The investigator takes the view of Ludwig von Bertalanffy (1967 b) that the mind-body problem may have been created by wrong categorizations in the first place. As Bertalanffy points out, by now it has become obvious that neither "matter" nor "mind" stand up against the test of scientific investigation. Cartesian "matter" has "dematerialized" in physics in Einstein's equation and in atomic explosions.

Instead of thinking in terms of mind and body--or energy and mass, in the old language of physical science--Bertalanffy instructs that:

> Analysis has to proceed at two levels: that of phenomenology, that is of direct experience, encompassing perception of outside things, feeling, thinking, willing, etc.; and of conceptual constructs, the reconstruction of direct experience in systems of symbols, culminating in science; it being well understood that there is no absolute gap between percept and concept, but that the two levels intergrade and interact. (Bertalanffy, 1967, p. 94).

The topic is left open in that it will be joined from another direction later in the review. At this point the researcher only wishes to establish that the present definition of the "affective domain" makes phenomenal and conceptual subclasses.

In the old mind-body language, this puts "mind" variables within the "body" domain. This is a shift of critical significance to education that today would model from Guilford's Structure of the Intellect in which "body" (affective) variables are put within the "mind" domain (Guilford, 1967). It is noteworthy that Guilford's configuration is fostered by experimentalist educators as a kind of periodic table for instructional chemistry. This widespread program of attempting to advance man's development through building blocks of intellect needs to be understood for what it is in terms of theoretical biology. Transposed to brain research language, it is a program to absorb the appendage man into his tumorous overgrowth of cortex. That such a program increases the phylogenetic peril of the species, particularly at this point in man's imbalanced development, has already been established by the literature reviewed. The investigator intends for an affective domain theory of education to be more appropriate to enhancement of man's phylogenetic potential. And, to repeat, the present definition of affective domain makes phenomenal and conceptual subclasses. Structuring education under the new language of the breakthrough from Newtonian physics--phenomenal and conceptual--brings a corresponding breakthrough long overdue in education.

Historically, the new view indicates cause for increased appreciation of the dynamic viewpoints of Hobbes, Leibnitz, Herbart, Reid, Stewart, Brentano, Hamilton, Stumpf, Ward, McDougall, and Tolman, among others. However, only selected recent literature of biology is reviewed in advancing the present study.

Some of the old language of psychology takes on new definition in the new view of science. "Mechanism" now defines that an organism is directed by forces acting upon it with predictable influence as in the science of physics. "Vitalism" in the new language defines that an organism is at least partly in control of the forces of its environment and thus is in a dynamic interaction with environment, in which it has the possibility of inner-directed choice.

Reorientation of life-science on the basis of the 20th century scientific breakthrough is occurring faster in Europe. Unfortunately, in the United States, recent progress has been relatively more technological than intellectual. It is generally accepted that most psychologists in America today still continue to work under the assumption that all behavior is determined by stimulus-response conditioning, although this view was outdated with the disproving of Newton's notions of classical physics.

Among new thinking offered on this subject is that of Bertalanffy (1967 b), who feels that general systems theory can provide a new frame-work for psychological theory. The systems concept implies a new epistemology that replaces absolutistic with perspective philosophy. In the new concept, the organism is an active system, not a passive receiver of stimuli from the outer world. The evidence coming in now indicates that man, in a very concrete sense, creates his universe (Bertalanffy, 1967).

The theoretical biologist, Bertalanffy, reports:

> . . . in psychoanalytic terms as by Freud, in terms of developmental psychology according to Piaget, Werner or Schachtel; in terms of the 'new look in perception' emphasizing attitudes, affective and motivational factors; by referring to von Uexkull's species-specific umwelt; to Cassirer's 'symbolic forms' to von Humboldt's and Whorf's evidence of linguistic (i.e. symbolic and cultural) factors in the formation of the experienced universe, etc. "The world as we experience it is the product of perception, not the cause of it' (Cantril)" (Bertalanffy, 1967 b, p. 92).

We further learn that such modern biological observations approximate those of modern physics, especially the interaction of observation and observed in microphysics (Heisenberg relation). Heisenberg (1958) states that physics has given up the hope of finding "a thing in itself" (Bertalanffy, 1967 b, p. 93), such as the atom of the mechanistic universe as an ultimate reality; in quantum physics, the object of research is no longer nature itself, but man's investigation of nature. At the climax of physical research man is confronting himself alone.

Aside from affording insight into man's fate, the above observation serves to remind again of the need for transformation of psychological language into phenomenological and conceptual systems. Buhler (Bertalanffy, 1967 b, p. 90) recognizes the modern view with the statement: "Present day biologic theories emphasize the 'spontaneity' of the organism's activity which is due to its built-in energy." She goes on to say that an organism's autonomous functioning, its spontaneous performance of certain movements are now recognized to call for concepts that represent *a complete revision of the original homeostatis principle* (Bertalanffy, 1967 b, p. 90) which exclusively defined behavioral tendency toward equilibrium.

The knowledge of self direction in biology is expanded further by recent findings regarding gene behavior. Genes, in their control of cells, were until recently thought to be able to give only one message that they were pre-programmed to give. They were first described as either dominant or recessive, but gradually more and more terms had to be added to account for their variations of behavior: repressors, apo-repressors, co-repressors, inducers, modifier genes, switch genes, operator genes which activate other genes . . . (Waddington, 1957). Now, in the new concept, cells are not atomistic units, each independent with its message. The atomistic notion happened to fit with the behaviorist notion of conditioned-reflex chain but, nevertheless, by the 1950's this thinking had to admit to new possibilities. Now we find *General Properties of Open Hierarchical Systems* (O.H.S.) being applied to what goes on. Pittendrigh, Simpson, and Tiffany (1957) write that the experimental evidence indicates clearly that genes act cooperatively as an integrated whole in the control of development. A cell's behavior depends in part upon where it is located. Decisions are made on the basis of test of its neighbors for strangeness or similarity (Bonner, 1965). "By feeding back information on the lie of the land to the gene-complex, the cytoplasm thus co-determines which genes should be active and which should be temporarily or permanently switched off" (Koestler, 1967, p. 125).

Such findings are evidence of a dynamic principle operating in organisms. Clearly there is a decision process in action, an inner direction on the basis of analysis of how things are, in order to decide what action should be taken to accomplish the creative intention of the developing organism. Cells creative? It is unbelievable, but the observation is empirical--and beautiful.

It is an easy step from here to Koestler's discussion of higher forms of self-repair and self-realization of which man is capable (given that the individual is free and has the will to engage his challenge). Koestler's The Ghost in the Machine (1967) is an excellent source that goes beyond this limited presentation.

In the new definitions, mechanism and vitalism theories both have support in empirical observations of biology. Mechanism is manifested in some systems of life. Vitalism is manifested in the wholeness with which living parts behave with variation as such varied behavior supports the intention of the whole to which they belong. Both mechanism and vitalism may be considered to be part of a more comprehensive theory which Bertalanffy discusses as organismic theory. Organismic theory is perspective rather than absolutistic and is associated with a new psychology, in Bertalanffy's view, in which "systems" and "symbolism" are key words. From such advances in life-science theory, the present study eventually arrives at a synthesis with the "joy in learning" of education's G. B. Leonard, (1968). As the review of various disciplines continues, other convergence points are discovered, offering further insight as to the whole to which the parts belong.

Insight Offered by Recent Research of Organized Cell Activity

Having reviewed the life-science ramifications of 20th century scientific breakthrough, a closer look at literature with regard to recent research of organized cell activity promises to further advance the present study.

Bertalanffy writes:

> Organismic processes as a rule are so ordered as to maintain the system . . . In spite of irreversible processes continually going on, they tend to maintain an organized state of fantastic improbability; they are maintained in states of non-equilibrium; they even develop toward increasingly improbable states, increasing differentiation and order, as is manifest both in the individual development of an organism and in evolution from the famous amoeba to man. (Bertalanffy, 1967 b, pp. 61-62).

Bertalanffy's description defines, in part, the "steady-state" aspect of homeostasis. The term originally referred to the processes which maintain most of the steady states in organisms. The steady-state processes are still of interest to the present research as studies of inner-directed behavior. There is now also a new literature of homeostasis that contributes significantly to a theory of self-directed education.

Though homeostasis was still listed under new words in Webster's 1960 dictionary, research studies of homeostatis form an impressive literature. The Symposia of the Society for Experimental Biology (1964) offers an excellent source from which a few examples of homeostasis are drawn:

> Insulative and metabolic adaptations to cold in vertebrates
> The thermal homeostasis of man
> The control of carbohydrate metabolism in muscles
> Fish respiratory homeostasis
> Control of salt balance in the crustacea
> Control of basic movements in flying insects
> Control patterns of orientational homeostasis . . .

It need not be said that the list could go on for countless pages and still barely introduce known systems of homeostasis. Research has established the functioning of various kinds of homeostasis. Among known forms are: social, ecological, developmental, psychological, and genetic as well as the regulatory mechanisms of physiology (Caspari, 1958).

Homeostasis is sometimes defined as "self-regulation of optimal conditions of existence" (Emerson, 1954, p. 73). It is more than a coincidence that this happens to be a definition of what STRUSD education hopes to accomplish. As such, homeostasis might be considered to be phenomena of self direction. The class of homeostasis that is self regulation of development reads like a "new education" slogan. Could it be that the laboratory literature of organismic dynamics of self-directed systems of development holds insight for education?

The term that once referred only to maintenance of steady states has now come to imply any biological control system. Such control systems have been discovered at all levels of life, both plant and animal, down to the level of a single living cell (Langley, 1965). If one might transpose this state of affairs to language of politics, the dynamics of homeostasis would demonstrate an ideal State such as is not yet manifest. In this ideal State, everyone is self-governed and yet everyone is working together in cooperative efforts for the good of the whole society. Multitudinous variations of biological organization reveal this kind of dynamics not as an ideal, but as ordinary, healthy everyday life. It is only when we come to man's role in the self-regulatory processes that we discover homeostasis dynamics to be aspiration only. One may ask why. It may be that the answer is given by previously reviewed findings with respect to possible imbalance of development in man's central nervous system. The evidence is sufficient to warrant serious concern. The public may take refuge in emotional reaction to relieve the stress that a statement of such possibility carries, but educational psychologists need to respond to such scientific observations with a more studied response of possible self-repair education (Koestler, 1967).

To pursue possibility of self-repair, a closer look at certain key factors of homeostasis is called for. Review of mechanisms of various levels of homeostasis is passed over so as to get to the issue relevant self-directed education.

We may ask, is the mind, one's yearning, driven, determined from an intricate mechanics as blind as a computer? Or is there a reaching into the unrealized in exploratory propensity for the finding and forming of increased value for the organism; is there a reaching and valuing contemplation which codes free choices into "computer language", the self determination of the destiny of the organism?

To state the issue in the more usual way: Is an organism's world mechanistically determined by random events that have randomly put together all kinds of "computer" programs and thus composed the living world of organisms? Or is the living world of organisms a forward-reaching phenomenon? May an organism's attributes be freely chosen from the world of possibilities? Is there a possibility of creative self-development program in support of leadership of biological mechanism?

Note that the question here is not phrased as an either/or proposition of vitalism versus mechanism. The question here is whether there is also, in addition to a mechanistic program, an organismic function that chooses purposefully what it wants to incorporate into its mechanistic program. Is life strictly response to stimuli? Or, as one wins knowledge of self, is there a chance of transposing intention into the coding of the "computer" program of one's organismic system?

The inquiry is back to the vitalism question in the review of homeostasis literature. Man's thinking and planning has centered on this philosophical issue for a very long while. For educational research not to come to grips with this issue is like testing for the best system of soil cultivation without asking what, if indeed anything, is planted in the soil.

If there is no active agent operating in organisms, then it follows that education may need to treat students as learners determined by the stimuli to which they respond. However, it should be recognized that such education merely passes the direction along to someone else or to a collective institution other than the self; the organism as a species is still acting upon itself. Such education may employ scientifically planned programs to change students in ways that meet preconceived behavioral objectives of what the education "should" accomplish. In other words, the predominant experimentalist methodology of American schools today might be considered appropriate for such education.

To challenge contemporary education is to run head-on into the notion of man as a being determined by his response to stimuli program. Fortunately, new research offers further knowledge with respect to this notion of man as a reactive mechanism. It is essential to the solution of the crisis in human development that educators review findings that have come in since contemporary education policies were conceived. It is also vital to frame educational research for empirical evaluation of new approaches in education. The present STRUSD Education study is such research.

With the discovery of the student as an active, rather than reactive, learner, education arrives at an era of encouragement of self direction, to the point of diminishing returns for a given situation of time, place, and person.

Under the new definition of mechanism and vitalism, the concept of individual man as a director of optimal conditions for his own life has gained broader support in biology. Individual goal-seeking is assigned an analysable physico-chemical basis and termed teleonomy, purpose as program of genetic coding (Mayr, 1968, p. 49).

The interrelated systems of steady-state and developmental homeostasis are under increasing study, which is yielding increasing recognition of extremely complex organization so rich in feedback and potential multiple pathways as to make complete description quite impossible (Mayr, 1968). Open systems analysis--a conception developed in a scientific way only in recent years--has contributed to the new view in which man is not an S-R robot, but an organization developing toward states of higher improbability, order, and differentiation (Bertalanffy, 1967 b). In the new view, man is an organism that reacts to stimuli, true, but he is also an active organism, "striving for stimulation, information, knowledge, novelty, interest, love, manipulating drive, fun" (Berelson and Steiner, 1964, p. 244).

Notwithstanding the arrival at this new self-active view of life, biology still tries to limit life to the level reachable with its mechanistic inquiry tools. A defensive air is still directed against the newly admitted purposefulness. An example follows: "The development of behavior of an individual is purposive; natural selection is definitely not" (Mayr, 1968, p. 49). Note the use in science of the absolute *definitely*. Is there in this attitude a fear of an invasion of the super-natural? Suppose that a neo-vitalism of larger proportion than individual organismic purpose were to be discovered by modern science? In space travel language, just suppose that it were discovered that not chance, but *man*, or perhaps "X", controlled the space ship's flight. To the researcher, the wild possibility of a hypothetical construct offering man insight to the source of purposefulness is not to be feared but to be pursued as the most profound possible discovery of science to date.

Part of the confusion with regard to the question of purpose in biology results from the fact that this question goes beyond the realm of biology's methodology to what is more advantageously studied by the investigation methods of psychology. The perspective offered above by biology on the subject of *purpose* so central to self direction to self direction is, nevertheless, significant.

Langley (1965), in discussing the influence of stress from the biological viewpoint, affords an example of the advantage to be gained from joining biological research with psychological research. Langley discusses the negative influence of stress upon population growth. In terms of psychology, this introduces the question of the extent to which ideas and attitudes can influence one's self-development and even the evolutionary process.

The biologist Langley has provided an example of the influence of psychological dynamics over biological process--that is, the influence of stress over population growth. This is true in part because the endocrine system, including the gonads, is controlled by the anterior lobe of the hypophysis, and the hypophysis is regulated by the hypothalamus, which is part of the brain. Thus, a clear example is afforded of how an organismic system is tied to the variable of thought process. One may see how the world of ideas and feelings is tied into the organismic system as an input altering biological process in purposeful ways even though thoughts and feelings may not submit to biological measurements.

Then why does biology refer to man as completely determined by the mechanism of complex codes of information in the DNA of the germ plasma (Mayr, 1968)? Does biology not accept the evidence that the life-space transaction with the outer world (the unique momentary life-space that is one's experience of living) is wired into the nervous system's input channels? It would seem that Langley's study, along with much other psychological research, firmly establishes the influence of stress upon behavior and, moreover, upon the reproduction of the species to which the organism under stress belongs. Then what is the basis for contending that all purposeful behavior is programmed by teleonomy, solely? It seems clear that all programs for behavior do not come from stored coding. This is a crucial point: for, the "job-description" of an organism's window of the world, the domain to which education may contribute, is defined by the nature of the relationship of life experience to ontogenetic and phylogenetic development.

Note that it is not said here that education needs to confine itself to the role that fits with its "job-description" function to the future of the host organism. It is said that education may be able to fulfill better its instrumental function to its host organism if the process of education proceeds with full knowledge of the significance of what is happening. But it should be recognized that by present evidence education has more than an instrumental function to an organism. The evidence of life being active as well as reactive needs to be remembered. The role of the window is indicated to be more than a function for alteration of organismic program; there seems to also be a here-and-now, intrinsic value function of impressive-expressive transaction, apart from instrumental function. The researcher terms the intrinsic function value and the instrumental function meaning. So the statement may be simplified to read: science has established that the window of an organism has both value and meaning potential. It is the full-blown potential which needs to be recognized for the fullest realization of the possibilities of education. This note on the importance of recognizing the value function of education bears mention at this point to correctly orient the discussion of instrumental function, meaning, which is the present concern.

To return to the question under examination, what is the meaning function of the phenomenological window of an organization of cells? Langley has documented the stress example of meaning function, but the question is so crucial that Mayr's position needs to be clearly understood:

> The completely individualistic and yet also species-specific DNA code of every zygote (fertilized egg cell), which controls the development of the central and peripheral nervous systems, of the sense organs, of the hormones, of physiology and morphology, is the programme for the behavior computer of this individual (Mayr, 1968, p. 48).

The article "the" instead of "a" defines a totality in this internal system and thus excludes the window input to the coding program of the behavior-computer, as this researcher reads the statement. If there is confusion on this issue, it may be because it is a peripheral subject to biology, an area of concern which has been assumed by psychosomatic psychology. Psychology would seem to offer an important contribution to a theory of education in this regard. The extent to which the window input alters the DNA program is, after all, a crucial question as to the meaning of not only one's education but of one's life. For in lay terms, the window is the life we know, and the DNA program influences what we do with life. A lot of questions about education and life are answered on the basis of one's understanding of the significance of the window, defined as momentary life-space.

A final contribution of biology relates to the extent to which the view from the window is influenced by one's original cell activity. This, too, is a crucial question for education today, for the extent to which genetic-code blindness structures the view from the window, tells a lot about the nature of individual and social experience.

The biologist C. H. Waddington reports:

> A second, more profound contribution of biology would be in connection with the degree to which the involvement of a percipient being, with a particular sensori-neuronal equipment, in any act of perception limits the 'validity' of our world picture. There was a controversy among physicists about this in the not very distant past. Most of those who believe in the 'Copenhagen' interpretation of quantum phenomena also believe that our scientific knowledge is not nearly as objective as had previously been thought. The argument can start from the conclusion that any means used to observe the position of an elementary particle, such as a ray of light reflected from it, is bound to

interfere with its motion, and thus make it impossible simultaneously to determine precisely its velocity. This is one of the forms in which the uncertainty principle is expressed. Heisenberg argues:

> If we wish to form a picture of the nature of these elementary particles, we can no longer ignore the physical processes through which we obtain our knowledge of them . . . Thus, the objective reality of the elementary particles has been strangely dispersed, not into the fog of some new ill-defined or still unexplained conception of reality, but into the transparent clarity of a mathematics that no longer describes the behavior of the elementary particles but only of our knowledge of this behavior . . . (Waddington, 1968, p. 26).

Studying such a profound question on the basis of change worked by a ray of light upon a passing particle may lose some of the impact contained in the conclusion--if one is not a physicist. But an entire philosophy of life is shattered with the statement that _we now understand that even mathematics does not describe reality but only our knowledge of reality_. With this crucial admission of modern science, phenomenology suddenly outdates prevailing psychology and philosophy. All that remains is the unfortunate lingering of the old solid world in which a stimulus was, so conveniently, an absolute quantity independent of the subject to whom it might be administered for testing of response variable. That the old S-R world still lingers as the predominant psychology of America is evidence of the kind of cataclysmic rethink called for by the new view. In passing from the objective to the subjective world as reality, one moves into an entirely different kind of life adjustment. In the new view there is no longer any solid, absolute matter in which one can invest one's emotional security, so it can be understood that those whose lives are already committed to materialism will find it difficult to change just because the science from which they modeled their original view has advanced beyond them.

It is the very appreciation of the new view which yields the insight that it is difficult to change such a deeply established perspective. As Waddington puts the case in the above statement, ". . . the involvement of a percipient being, with a particular sensori-neuronal equipment, in any act of perception limits the 'validity' of our world picture" (Waddington, 1968, p. 26).

The interpretation that seems to be justified from the review of homeostasis literature thus offers that (1) previous organismic experience along with genetic code programming influences the perception with which one creates the window of self; (2) external input makes a transaction with the organism's viewing program to effect an emergent momentary life space (window); (3) the momentary life space may have both intrinsic value potential and meaning as instrumental input to the organism. (The use of emergence in this context borrows from Mayr's statement of the principle: "When two entities are combined at a higher level of integration, not all the properties of the new entity are necessarily a logical or predictable consequence of the properties of the components" (Mayr, 1968, p. 53). It may be noted that "life" in this interpretation is an emergent phenomenon, not a determined phenomenon.

A final salient point with respect to homeostasis is that it is an open system; that is, like a flame, it is maintained in a continuous exchange of components. As Bertalanffy, who has specialized in open systems, informs, organic structures are expression of an ordered process, and they are only maintained in and by this process. Thus the primary order of these processes must be sought in the processes themselves, not in pre-established structures (Bertalanffy, 1960).

"Looking broadly at biological phenomena," Bertalanffy continues, " . . . two very general phenomenological principles obtain: one of the maintenance of living systems in continuous flow of ordered process, and another of a trend toward increasing differentiation and order ('anamorphosis' in a term of the German biologist Woltereck)" (Bertalanffy, 1967 b, p. 78).

Bertalanffy points to the work of Heinz Werner, in psychology, for further enlightenment with respect to the anamorphosis tendency of organisms. Werner's work is to be reviewed in this respect in the psychological literature section.

Coming to grips with the question of fundamental cause, Bertalanffy writes: "It would appear that the minimum requirements for a 'living organism' exhibiting self-differentiation are an open (metabolizing) system providing the energy required, and a genetic code steering the process by way of stored information" (Bertalanffy, 1967 b, p. 80).

In this concept, the present review emphasizes the requirement of external input, for the window, as already described, and as may be documented by research of sensory deprivation. Focussing on the window variable, one has interesting speculation as one continues with Bertalanffy's analysis:

> If we do not wish to accept a gratuitous and rather fantastic preformation, supposing that all information or codones directing human development were already present in the primeval amoeba, we must grant that the amount of genetic information has increased in evolution. But this is another dimension in the negentropic trend of the living world.
>
> Such and possibly other aspects will have to be integrated in order to arrive at a theory of a very profound problem in the living world. We are not willing to make a new "vital force" or "entelechy" out of presently unsolved questions; but we have to look forward to a new breakthrough, possibly in the way of further generalizations and unification of thermodynamics, information theory, and molecular genetics (Bertalanffy, 1960, p. 80).

It appears that the information source which Bertalanffy is searching for may be discovered in the input from the life-space of an organism as revealed by the here presented theoretical synthesis. The hypothesis suggested by the literature is that genetic information may be changed by the emergent phenomena of life experience (the window). The anxiety factor of the window is one example of such influence both ontogenetically and phylogenetically. The significance of the discovery of such a role of organismic function of subjective experience makes this a subject deserving further study.

It may be noted that to Bertalanffy the question of where the information was coming from for anamorphosis raised anew the temptation of explaining the unsolved question as the work of a "vital force." Assuming that the presently offered answer, as to source of the program coding of anamorphosis, is correct, where does that leave the question of elan vital?

In the new view, the study of man's relationship to the unknown would take the direction of examining the scope and nature of the process through which man, as an open system organism, chooses and fits change of behavior into his organism to evolve into more than he presently is. Such study might justifiably be called a religious inquiry as much as an educational inquiry. In present terminology, it would be a study of man's creativity: the finding and forming of meaning and value.

In the new view, creativity, as in the above context, is synonymous with healthful life engagement. That it requires self direction follows from minimal reflection. But there are two other essentials of this process of meaning and value gathering. Teilhard de Chardin brought these essentials to attention in his discussion of internal conditions necessary " . . . if the planetary evolution of consciousness is to reach its term, in us and through us . . ." (Teilhard de Chardin, 1956, p. 118).

Teilhard de Chardin wrote that man must have the know-how to do, which was not a critical factor at this time in history (though it must, of course, remain a concern in education). And, secondly, Chardin stated that man must have the will to do, which was a need placing man in his greatest peril at this point in history.

This study interprets Chardin's concern for a greater will to do on the part of man as being a concern for greater will to search out meaning and value in the life experience and will to extend the life possibilities envisioned in the searching process. To put the above concern more briefly, it is defined as appeal for creative energy. What are the variables that determine levels of creative energy? What is the nature of creative energy? What is the role of education in the development of creative energy? These questions are considered in the next section studying the history and theory of various dynamic psychologies.

Historical Contributions and the Functional Misuse of Dynamic Psychologies

In rescue of a suicidal dancer of the tragicomedy "Limelight," Charlie Chaplin appeals, "Life is not meaning. Life is desire. The desire of a rose to be red and a rock to be firm . . ." (Alf, 1967, p. 1) This is the kind of dialogue from which the subjective reality of life may be discovered by psychology.

What is desire, in this context? To study this question, it would seem to be advisable to switch to the term historically associated with desire in psychological literature, that is, the term conation. Respecting the central sense of varied usage, conation is defined as an intrinsic unrest that subsumes homeostasis to develop an organism into something other than what it presently is. The investigator has used this term principally as description of the unrest that moves a steady state into a new steady state . . . on and on. As has been noted in previous pages, the term developmental homeostasis has recently come into use to describe this process as a related program of the genetic code, open system that maintains the steady states. In other words, the concept conation, as an affect term, may in the new language of homeostasis be associated with the systems term, developmental homeostasis; these are two aspects of the same phenomenon. It may be recalled that the term teleonomy was used to define that behavior of developmental homeostasis that derived from the message center of the genetic code of an organism: such behavior was termed mechanistically purposeful. In Chaplin's language, to the extent that the rose is red because of its teleonomy, desire toward redness is superfluous. The discussion here does not intend to analyze roses but only to communicate illustrations of usage of the terms introduced.

The term teleology, which the documentation has revealed to be a source of emotional reaction, would apply to the extent that the desire, the conation, was not the consequence of teleonomy but was, rather, an emergent energy, urge, feeling, propensity, will, or whatever it might be called coming into the open-system from the transaction of teleonomy with the window of self. It is important to note that the term teleology in the vocabulary here joined from various disciplines does not assume, negate, or define who, why, or what the cause or source of teleological input may be, if it exists. To define teleology in another way: that factor of behavior which is not the product of pure chance and is not the product of teleonomy is defined as teleological. To illustrate, one might say that a rose is red principally due to its teleonomy, but one might speculate, at least, that Chaplin is funny due to more than teleonomy and chance, that there is a teleological factor in his history. Both teleonomy and teleology, in this sense, are source terms. Teleonomy defines the individual genetic code source and teleology defines any source other than teleonomy and chance.

Aveling (1926) offers a simpler definition of conation: "Conation is the striving of a being towards or away from an event or end" (Aveling, 1926, p. 339). Aveling does not separate between a person who makes a living to educate himself and a person who educates himself to make a living. That is, his vocabulary is the same for (1) a person who maintains his body equilibrium in order to become more than what he is, and (2) a person who strives to become more than what he is in order to maintain his body equilibrium. This is an important theoretical distinction.

In Maslow's need hierarchies, this distinction separates status, love, and self actualization adjustment from physiological and safety level adjustment. Applying the distinction to the arts, one sees that the conative artist's primary involvement would not be the commerce of self-maintenance but the creative engagement in transformation to richer value states.

The review extends discussion of conation because of its close association with the commitment factor of self direction, a central factor of the present study. Historically, the word conation derives from the Latin conatus, a striving. Conatus and near equivalents as Antrieb, Streben, Wille and Trieb were used by Spinoza, Schopenhauer, Hartmann, Wundt, and Paulsen (Baldwin, 1905). Hamilton divided mind into cognition, feeling, and conation (Webster, 1960). It is noteworthy that education today has taxonomies for the cognitive (mind) and affective (feeling) domains but has no taxonomy for conation (energy) objectives in education.

Stout made a similar classification to Hamilton's in 1903: cognition, interest, and the subdivision: conation, feeling-attitude. In 1914 Messer offered a German division that is translated as knowing, feeling, and a subdivision of appetition, desire, will, and conation (under willing). In 1918 Ward developed a schema using cognition, feeling, and conation (Boring, 1957)--Hamilton's classification.

Conation has had confused usage as well and volition. Germans have written of Begehren (desire) and of Streben (striving) (Baldwin, 1905). Some modern writers have made the term include every state and degree of unrest (Webster, 1960.

The leading conation theorists in this history were not of the analytical empiricists school that advanced the "new" experimental psychology. To find common ancestry with the conation theorists and the empiricists one must go back to Aristotle. When one moves forward to Leibnitz, an influence on Herbart, Hamilton, Stout, Ward, and many other conationists, one is already far apart from the stream of empiricism as then represented by John Locke. One finds oneself with the act psychologists as one moves forward in history. This fact is consistent with the present relationships being discovered between this research and present day "action" psychology.

The men who furthered the concept of conation were the challengers of the "new" atomistic invasion of scholarship that got ever stronger. In the 18th century Scottish school, Reid held that people's acts may be consequent from certain irresistible convictions due to intuition and that merit will not submit to mathematics. Hamilton directed his criticism against the climaxing figure of mechanical compounding, James Mill. The challenge was enthusiastically joined by Mill for a heated and sustained confrontation (Veitch, 1882). Herbart was also a critic of James Mill at this time. Finally, Wundt was opposed by Brentano.

There was a crucial difference between the psychologists who chose to analyze people as structure of consciousness and those who chose to contemplate man's impalpable activity and energy. With risk of oversimplification of a scientific world divided by many issues, it is proposed that a fundamental schism was belief or disbelief in life-purpose. As the Renaissance cut through church dogma, life's unanswered questions impinged upon a scholarship freed from paralysis of the divine truth. Each thinker sought his own answers. From subjective assumption each thinker bore forth with objective armor to probe the mysteries of life. Who was now to provide the answers to life's mysteries, if not science? Who was to offer guidance as to how man should best fulfill his potential, if not science?

For those who chose to believe in a purposive universe, science became instrumentation for comprehension of the dynamic, conation scheme of actuality. For those who chose to believe in a mechanistic analysis of life, science became instrumentation for comprehension of structures resulting from chance combinations. The mechanistic school, offering more solid "stuff" with which to build a discipline, slowly became relatively more powerful.

The perspective of life as creative energy and activity became dynamic psychology of the 20th century. There was psychoanalysis, the great Freud of id, ego, and super ego. And there was Ladd, McDougall, Holt, Tolman, Woodworth and Lewin. Each was a precisionist in advancing his concept of desire under terms like motivation, attitude, set, active attention, sign-gestalt, cathexis, valence, tension, and goal-response (Boring, 1957).

McDougall's work (1923, 1932) is particularly noteworthy. In Outlines of Psychology, 1923, he put forth his systematic position that contrasts with American behaviorism. His purposive psychology relates systematically to the later purposive behaviorism of E. C. Tolman. His position that determinism does not wholly control the mind met with little support in America, where the _zeitgeist_ had mechanistic behaviorism and determinism dominant in science. Boring (1957) reports that the controversy McDougall provoked was centered in terminology: What the determinists called "probable error" McDougall called "freedom."

In _The Energies of Man_, 1932, McDougall writes:

> . . . some fail altogether to recognize striving or conation as a fundamental aspect of mental process. The Germans have long used the word _Trieb_ to denote what we are calling an impulse, a striving, a conation, an active tendency . . . The distinction between the propensity (or latent tendency) and the active tendency, striving, or conation is analogous to that between potential and free or active energy in chemistry and physics (McDougall, 1932, p. 118).

Here we have anticipation of contemporary psychology that emphasizes the _active_ rather than _reactive_ model of behavior.

McDougall also advanced "Hormic psychology" that asserted that each animal species is so constituted that it seeks or strives for certain natural goals, the attainment of which satisfies corresponding needs of the animal. It is remarkable how this view was sustained by later discovery that found McDougall to be mainly in error for crediting the hormones for the work of DNA coding.

Another turn-of-the-century anticipant of future developments was M. F. Washburn (1916) who held that a _determining tendency_ was responsible for the fact that the same stimulus may suggest different ideas under the influence of different problems (Washburn, 1916). In his writing one has an anticipation of the inadequacy of S-R theory as later revealed by gestalt psychology and phonomenology.

Conation research of E. H. Wild, (1928) *Influence of Conation on Cognition*, deserves mention as an early study at college level. Wild used McDougall's definition: *attention is conation effect on cognition*. After evaluation experiments in four training colleges, Wild reported that it had been clearly established that in all cognitive operations conation exerts an influence. If we put the terms *attention* and *cognition* of Wild's research into the affective and cognitive domains of the taxonomies of educational objectives (Bloom, 1956, Krathwohl, 1964), we may discover at the highest level of educational objective the provocative definition: *characterization* is *conation* effect *on evaluation*. (Transposing *attention is conation effect on cognition*.) This transposition of terms to present vocabularies would seem to keep the sense of the original definition, but in reading the transposed version the researcher is impressed by the fact that education actually has no conation domain of objectives to encourage *characterization* from *evaluation*. Teilhard de Chardin seems to be right in suggesting that the *will-to-do* domain is neglected in modern education.

Another contribution to dynamic psychology is the creativity theory of Harold Rugg, posthumously published in 1963. Rugg offers that life is possible . . .

> when an organism has enough surplus energy to carry over dead center to imbalance. The theory must account for the on-going, never-ceasing, accumulating structure-building. Its very foundation is a conception of rhythmic pulsation as the basis of the autonomous forming process. Being intermittently a bit off-balance is the key to the continuity of the life process (Rugg, 1963, p. 242).

This thinking is consistent with Avenarius' formula of "vital difference," with catabolism and anabolism working for vital balance and the genetic course described as a "vital series" (Boring, 1957).

D. C. McClelland (1962) raises the interesting question as to the relationship between conation and aggression. "It is no mere metaphor to say that analysis represents a form of aggression. To take something apart is to destroy it in a very real sense" (McClelland, 1962, p. 166). McClelland is among researchers who report that creative scientists are unusually hard working, appearing to be almost obsessed with their work. However, one cannot assume that conation is the cause of the hard work; such an hypothesis would require further testing.

Research has often associated the hard-worker characteristic with the highly creative. Hirsch (1931) reported:

> The conative aspect of this dimension of intelligence is the impulse to Create, which in

> artists, scientists, inventors, and philosophers of the first magnitude is more persistently present and more imperiously impelling than the instinctive drives of the ordinary man (Hirsch, 1931, p. 234).

Two kinds of conation were the subject of study in the first part of the century: (1) the kind of consciousness that accompanies muscular exertion, and (2) the state of active attention (Funk and Wagnall, 1931).

In the 20th century, Western materialism fused with dynamic psychology in the form of a new school known as functionalism. In the functional psychology of Dewey, intelligence was no longer the ability to accommodate the world; it was the ability to adjust to environment--the environment was suddenly king.

Boring (1957) writes of the role of theoretical biology in the new psychology developing in an atmosphere of U. S. pioneer spirit:

> Darwin's theory was destined for enthusiastic reception in such an atmosphere. And the result of this theory was that American psychology went functional, assessing mind and mental activity in terms of use and survival value (Boring, 1957, p. 243).

Survival for what end? This was not specified by functionalism. As a psychology for implementation of unexamined ends, functionalism advanced an education for maintaining the status quo, which happened to be a materialistic society that wanted strong backs more than strong minds. Under the axiom, "if it works, it's good," educators studied the smoothly running Nation State with new car models every year and bigger and better factories in every town as time went by. It was all working, and education's job was to keep it functioning "good." Thus, by no planned intent, schools found themselves with a model of development in which children were to be shaped into functions of the industrial economy. The original conatus energy of Dewey's revolutionary conceptions of what education means, was absorbed by the striving and growing capitalistic technology.

Randolph Bourne wrote in 1917 (Bourne, 1956):

> But when the emphasis is on technical organization, rather than organization of ideas, on strategy rather than desires, one begins to suspect that no programme is presented because they have none to present (p. 249).
>
> . . . And, Dewey, of course, always meant his philosophy, when taken as a philosophy of life, to start with values. But there was always that unhappy ambiguity in his doctrine as to just how values were created, and it became easier and easier to assume that just any growth was justified (p. 253).
>
> . . . It is now becoming plain that unless you start with the vividest kind of poetic vision, your instrumentalism is likely to land you just where it has landed this younger intelligentsia which is so happily and busily engaged in the national enterprise of war (pp. 253-4).

Bourne goes on to tell of a prevailing 1917 educational emphasis on the mechanics of life at the expense of the quality of living. He writes of the dangers of such education making the nation into a land of mob psychology. And in a final sentence he ties his statement into the conatus stream of history as he anticipates man's future, along with Pierre Teilhard de Chardin of present time. Precisely he writes: "It is the creative desire more than the creative intelligence that we shall need if we are ever to fly" (Bourne, 1956, p. 259).

Bourne's analysis points to functionalism as a miscarried dynamic psychology that brought the United States to the circumstance that Pierre Teilhard de Chardin interprets as a need for creative desire. It is important to note how Pierre Teilhard de Chardin's analysis of man's greatest peril, and the lack of will to do is traced by Bourne to the failure of the prevailing American education of the twentieth century. The analysis suggests the need of a new approach in education.

From the above literature, one may gather that a value-barren, machine-model of life was glamorized in the first half of the century. The functioning economy was assumed to afford a cosmic fit for every child. As mechanistic behaviorism gained power in American education, there was no different model of the ends of education; there was only an increase in the technology of means.

By the 1960's the students of this education were resisting sufficiently to be causing the drop-out problem. By 1970, the problem, the frustration of the students, had progressed to the burning of buildings.

However, dynamic psychology promises to outlive this functional failure. Historical terminology such as conation faded out in the 1930's, but the conatus model of human behavior continued to develop in psychological theory and practice under new language and perspective. Still education has only begun to take advantage of the impact upon human development that is potential in a dynamic psychology approach to school experience.

Contributions of Recent Further Study of Evolution Theory

The purpose here is to assist better the role of education in ontogenetic and phylogenetic development. The treatment works for better integration of education with growth. There is no attempt to survey all of the arguments with respect to evolution-hypotheses and evidence. The inclusions are those which are considered to be most important in the development of the theory of education presently under research.

It has been observed in previous pages that there is a social lag that has education still oriented from the absolutistic mechanics of classical physics rather than from the relativistic mechanics of the new era of quantum physics. There has been a mention of scientific findings that advance a new epistemology of perspective philosophy from the outdated absolutistic mechanics. Among specifically mentioned findings were the Heisenberg relation of microphysics, open systems theory of biology (Bertalanffy, 1967), and, of course $E=mc^2$, with its revolution that has only just begun.

The earlier revolution opened by Darwin's theory has also been noted, and its historical influence upon American education has been documented. The review at this point seeks to discover a post-Einsteinian analysis of theory of evolution and, further, to bring in new evidence from this century's rich literature of evolution research. The barest reflection on the profoundness of the question of evolution makes it understandable that the prevailing views on this question deserve to continue to be an influence on education. But it would seem to be imperative that a new era education should proceed from new analysis of evolution theory.

In reviewing the literature of evolution one finds an extremely rich body of information with regard to life less complex than human life, and often one finds inference from this information with respect to the human condition. There may at times be a sound basis for such inference, but to limit the present study to best advantage, this review holds to separate analysis of the phenomena of human evolution. Separate human analysis is especially appropriate in relation to education.

The significance of evolution theory to education may be communicated in a reverse way by quoting the "hard line" position held by a mechanistic-minded scientist of our time. Crick (1966) writes:

> Once one has become adjusted to the idea that we are here because we have evolved from simple chemical compounds by a process of natural selection, it is remarkable how many of the problems of the modern world take on a completely new light. It is for this reason that it is important that science in general, and natural selection in particular, should become the basis on which we are to build the new culture . . . The old, or literary culture, which was based originally on Christian values, is clearly dying, whereas the new culture, the scientific one, based on scientific values, is still in an early stage of development, although it is growing with great rapidity (Crick, 1966, p. 93).

The researcher assumes that the possibilities for man are not limited to an arbitrary dichotomy of Christian values versus scientific values; though this limited construct seems to hold in the life-space of some biologists. The researcher explores broader possibilities in the present review of evolution literature. It may be that the outcome of this study will yield an interpretation that art, not science, must lead the new culture instrumented by science.

At the outset of the review, it is first important to note that the Darwinian theory and neo-Darwinian theory that so revolutionized Western thinking has not gained unconditional acceptance with the further advance of science. The general notion that organic life is an evolving phenomena from simpler to greater complexity and organization has gained ever greater acceptance. But aspects of Darwinian theory, now most broadly revamped as neo-Darwinian theory, are under serious scientific scrutiny. A few instances of the scrutiny are noted in order to communicate the degree to which questions are still open and answers are still sought for.

H. G. Cannon (1959) writes of the scientific debate in regard to evolution:

> But now listen to what Goldschmidt said as early as 1940. Nobody can deny his authority. In the early twenties when I had the privilege of meeting him at Bateson's house, he was one of the leading figures in the Mendelian world. After all it is perhaps not too much to say that his work on inter-sexes paved the way for the Neo-Mendelian outburst. But now, after a long period of Mendelian research this is what he said (Goldschmidt, 1940, p. 397): "The neo-Darwinian theory of the geneticists" being no longer tenable must be abolished. It is incompatible with the picture of evolution, and it accordingly blocks progress in evolutionary thought . . . There are other criticisms that come from most distinguished sources and they cannot be ignored . . . The science of genetics has been allowed to drift into the control of the mathematicians who, however commendable may be their efforts at understanding the problem of evolution, can hardly be expected to have a real insight into what is meant by a living organism. In a book, Darwin's Century, by Loren Eiseley . . . after an admirable and most courageous account of the rise and fall of Darwinism, the author breaks off about 1900 and suggests that since then the mathematicians have adequately dealt with the matter and interpreted the whole of the evolutionary process in terms of Mendelism. Unfortunately, the two mathematicians whom he quotes as being mainly responsible for this revolutionary advance appear to be at complete loggerheads! (Sheppard, 1958, p. 135) . . . Is it surprising that an anonymous author recently, in a very distinguished journal (Times Educational Supplement, 1958) described the modern orthodox Mutation-Selection hypothesis as consisting of "assigning names to hypothetical lumps of stuff in order to confer magical virtues on them, so that a crowd of lumps can bring order out of chaos and unity out of multiplicity? . . . There are others

> among contemporary writers. There is Professor Thompson (Thompson, 1956) who, in his introduction to the reprint of the sixth edition of the Origin, questions completely the efficacy of the power of Natural Selection on which the orthodox geneticist relies so strongly. Then there is Professor Vandel (Vandel, 1958) of Tropical France who has a conception of the living organism much more in line with Lamarck and, I may add, myself, and will have little to do with Neo-Mendelism . . . there is of course that great anatomist, Wood-Jones. In his last writings he put forward examples which would tax the ingenuity of the most abstruse Neo-Mendelian to explain away on a genic hypothesis . . . there is Caullery, who, at the time of his death last year, was the doyen of zoologists in Lamarck's own country. He opposed Mendelism completely as a mechanism for explaining the evolution of parasitism, and when we realize, that, among animals at least, there are probably more parasitic forms than there are free living, his criticism, based as it was on a life study of animal relationships, cannot be lightly ignored . . . I feel that the ordinary scientific reader, and particularly the senior non-biological scientists, should be made to realize that there is a strong and, I feel, growing opposition to the monopolistic attitude of the modern geneticists (Cannon, 1959, pp. x, xi, 112, 113, 114).

The present review has already reported what seems to be an unscientific defensiveness with regard to unanswered questions of biology. Further illustration of this circumstance seems appropriate, for interpretation of literature requires a knowledge of the climate in which statements are made. The researcher respects that it is impossible to be truly objective in the study of one's origin and fate. In such study, the intellect is more than ever a product of created life-space, the window of self, in which security-needs, longings for identify, free-floating anxieties, and active-energy propensities mix with the empirical input from scientific study. The thesis of the subjective base of all human inquiry and direction is further examined in the present development of a theory of education, as a limiting condition which the present inquiry respects in its procedures.

The literature abounds with the kind of examples of frightened attitudes that follow from the proceedings of the symposium held at the Wistar Institute of Anatomy and Biology, April 25 and 26, 1966. This is the previously mentioned symposium in which biologists invited mathematicians to an exchange of views with regard to the neo-Darwinian interpretation of evolution (Moorhead and Kaplan, 1967). The resulting monograph is entitled, "Mathematical Challenges to the Neo-Darwinian Interpretation of Evolution." It seems that mathematicians were badly outnumbered by biologists at the symposium. The views of biologists dominate in the resulting report. However, mathematicians did make their views known. These views are most important to the present study. It is also important to note the atmosphere of tension created by the findings that the mathematicians offered. To communicate the heart of the confrontation, Dr. M. C. Schutzenberger's conclusion to his paper, "Algorithms and the Neo-Darwinian Theory of Evolution," is first given, "Thus, to conclude, we believe that there is a considerable gap in the Neo-Darwinian theory of evolution, and we believe this gap to be of such a nature that it cannot be bridged within the current conception of biology" (Schutzenberg, 1967, p. 75).

One might expect that such a finding would be met with respectful serious reflection. However, one notes instead the monopolistic attitude reported above (Cannon, 1959, p. 114) as Dr. Weisskopf responds to the speech with: "I want to analyze the difference of opinion between Schutzenberger and the rest of the world . . ." (Schutzenberger, 1967, p. 80).

It is interesting to speculate on the psychology of exchanges copied from the symposium record:

> Dr. Schutzenberger: . . . If I had more time, I could have dissected the typographic changes into three levels, each corresponding to a type of algorithm; each of them is practically irreducible to the previous one.
>
> The Chairman, Dr. Waddington: Your argument is simply that life must have come about by special creation.
>
> Dr. Schutzenberger: No!
>
> **Voices**: No! (Moorhead and Kaplan, 1967, p. 80)

The vigor of the "no" reminds one of mother having caught the baby's hand in the cookie jar. Plainly the question of creation is not understood by the gathered scientists. Plainly, too, if one reads the exclamation marks as indicators of emotion, there is more than an objective calm in the reaction to question of special creation. As said, the study of origin and fate gets to the core of each human being. To attempt such "objective" study may be as ambitious as an attempt of "objective" analysis of one's private love life.

One may further note, from the opening remarks of the Chairman of the referenced conference, Sir Peter Medawar, " . . . Many of you will have read with incredulous horror the kind of pious bunk written by Teilhard de Chardin on this subject . . ." (Moorhead and Kaplan, 1967, p. xi).

The researcher makes the above entry, not to take a position for either Teilhard de Chardin, God, or Darwin, but to record the emotionalism of the scientists.

One may intuit again a kind of emotional need to destroy the unknown in the opening and end statement of the book, Of Molecules and Men (Crick, 1966).

In human affairs there is the possibility that the most conservative position, the most concrete and spelled out position on an issue will be regarded as the most scientifically sound position, the most scholarly respectable position. But it is a lesson of history, which Mendel's very work offers in being ignored for 80 years, that science has long been dominated by a tyranny of the "obvious."

The 80 years that it took for scientists to seriously consider Mendel's work illustrates the danger of announcing ideas too far afield from accepted viewpoints of the day. Thus, the present researcher finds it appropriate not only to look at subject matter but also at the attitude of the scholars engaged in the study. This has been done briefly. Rather than to prolong illustration, the researcher reports the summation that he has found mechanistic positions to be more rigid, less objective in tone, and less open in attitude than positions that admit to possibilities of non-material phenomena. The hard-liners seem to be less open minded. The literature contains more examples than this report can carry. It seems that some scientists are intellectually handicapped by a need to do battle against invaders from the supernatural world.

Under the above rationale, the present study gives fullest coverage to the work of those researchers who seem to have the most open approach in their inquiry. The writings of Bertalanffy, Dobzhansky, Eisely, Koestler, Huxley, Simpson, Schubert-Soldern, Stebbins, and Waddington come most immediately to mind.

Having discoursed generally, the presentation now advances systematically under the following headings: (1) Challenges to classical theory; (2) New understanding of the nature and influence of environmental dynamics; (3) New understanding of the nature and influence of organismic organization; (4) The advent of open systems theory; (5) A redefinition of health criteria; (6) The measurement of behavioral evolution; (7) The role of creativity in growth and evolution.

Challenges to classical theory. Dr. C. H. Waddington of the Institute of Animal Genetics, Edinburgh, England, summarizes classical neo-Darwinian theory as a system which involves:

1. Random gene mutation, treated as a repetitive process so that each mutational change can be assigned a definite frequency.
2. Selection by "Malthusian parameters," i.e., effective reproduction rates.
3. An environment which is treated as uniform, that is, it can be neglected.
4. The phenotype has no importance other than as the channel by which selection gets at the genotype (Waddington, 1967).

Waddington reports that this system is theoretically a closed one, which does not lead to continued evolution, but at best to a passage leading to a state of equilibrium. According to Waddington, the possibility of continued evolution requires the postulation of one or more of the additional needs:

> (1) continued change in the environment, arising independently of the existence of the organisms within it. (2) an initially heterogeneous environment, whose heterogeneity is continually increased . . . (3) the existence of epigenetic organization of the phenotype . . . (4) the possibility of the occurrence, at later stages, of types of gene mutation which were theoretically impossible at earlier stages . . . (Waddington, 1967, p. 113).

Waddington then reports that it seems almost certain that all these factors have in fact played a part in evolution as it has actually occurred, and he pursues an analysis which brings him to the decision that the "crucial issue" is factor (3). This review will later relate this Waddington analysis to the present study.

The review presently examines further challenge of neo-Darwinian theory by a symposium of mathematicians in 1966. One report has already been mentioned. Another report was offered by Dr. William Bossert, of Harvard University. His study was entitled, "Mathematical Optimization: Are there abstract limits on natural selection?" The report ends as follows:

> To summarize briefly, the basic evolutionary operators of mutation and natural selection do not perform well, in the sense of translating a population to which they are applied over a space of genotypes to that genotype which is optimum. The various groups of applied mathematicians who recognized this quickly discarded the operators as abstract mathematical tools and gave passing concern about the state of our understanding of evolution. The finding is no surprise and of little interest to biologists since mutation and selection do not complete the "neo-Darwinistic interpretation of evolution." Additional operators such as migration and selection of populations easily overcome the difficulty of stagnation at non-optimum fitness levels, which turned these particular mathematicians away. It is unfortunate that communication ended on both sides at such an elementary level (Bossert, 1967, p. 41).

One may again note the shift away from the operators of mutation and natural selection and a search in the direction of "additional operators" as explanation for evolution phenomena. The mentioned "migrations" and "selection of populations" operators fall within the domain which is of principle interest to the present study of possible influence of human education upon evolution. As one notes the various criticisms of neo-Darwinian theory, one senses a consistent shift toward the domain that the researcher calls the experience dimension of the organism.

One picks up this same theme again in the statement of the mathematician Dr. Ulum, as offered at the above mentioned "mathematical challenges" symposium:

> But the whole point is that there was no formal model given in advance a billion years ago from which one would be able to predict what would develop. The very rules of development were changing in time and influenced by the changing external conditions (Ulum, 1967, p. 91).

The ecologically oriented statement of W. E. Howard (1967) at the same symposium seems to continue this direction of thinking and add to the organizational theme that other scientists have offered. In summary of his presentation, "Some Ecobehavioral Problems to Mathematical Analysis of Evolution," Howard states:

> . . . Until ecologists can obtain a keener insight into the factors that regulate productivity and stability of vertebrate communities, it is difficult to obtain the needed empirical evidence about the process of speciation . . . (Howard, 1967, p. 105)

With regard to the human circumstance of factors that regulate productivity and stability, it is the researcher's judgment that this position moves the study of evolution into the domain covered by behavioral and social sciences, including educational psychology. Howard continues:

> It appears to me that much of the essential logic of evolutionary theory will be determined in the future from new concepts about the complex biological entities involved and their delineation as entities, not from the quantification of biological measurements (Howard, 1967, p. 105).

If one transposes the term "complex biological entities" to the human community and its intricacies of phenomenological entities registered out of transaction of biology with environment, this statement begins to communicate the rationale behind the inclusion of evolution literature as a part of the present educational psychology research.

To sum up, scientists of neo-Mendelian orientation who are influenced by new views of genetic coding, as mentioned in the section on organized cell activity, seem to have gained a central role in the study of evolution. The old mechanistic concepts have been increasingly abandoned. Dr. Murray Eden (1967) of Massachusetts Institute of Technology writes:

> During the course of development of neo-Darwinian evolution as a theory, a variety of suggested universal postulates with empirical content have been invalidated. For example, the postulate that environmental influences on parents cannot affect offspring was invalidated by the discovery of induced mutations. In like manner, the notions that genes alone govern inheritance or that no morphological changes in a phenotype will propagate in its descendants have also been experimentally contradicted. In consequence the theory has been modified to the point that virtually every formulation of the principles of evolution is a tautology (Eden, 1967, p. 109).

New understanding of the nature and influence of environmental dynamics. Dr. Marcel P. Schutzenberger offers as summation of his paper, "Algorithms and the Neo-Darwinian Theory of Evolution":

> In other words, I believe that an entirely new set of rules is needed to obtain the sort of correspondence which is assumed to hold (one way--Darwin, or the other--Lamarck) between neighboring phenotypes and which is needed in similar theories of evolutions (Schutzenberger, 1967, p. 121).

This section will present some of the new findings and ideas advanced in recent years and will seek to draw this information into a perspective for application to education at this time.

The views of Waddington have already been mentioned in respect to classical neo-Darwinism. Since he is considered to be one of the leading Neo-Mendelians (Cannon, 1959), it is considered particularly noteworthy that Waddington considers genetic assimilation to be "the only radically new, experimentally verified, evolutionary process discovered in the last twenty years" (Waddington, 1967, p. 113). He describes genetic assimilation as involving (a) developmental homeostasis plus switching mechanisms and (b) the heritability of developmental responses to environmental stimuli.

The first of these elements has already been touched upon. The second sounds so much like a return to Lamarckian theory that it surprises one. After studying the extent to which Lamarck is misinterpreted (Cannon, 1959), the Waddington statement seems even more to take a direction toward Lamarck's theory of evolution. It is beyond the purpose of this paper and the qualifications of the investigator to evaluate the differences between Waddington's present day position and Lamarck's views. However, it is noteworthy that Cannon (1959) writes:

> Nobody has proved experimentally that acquired characters can not be inherited any more than the reverse is the case. The idea has been abandoned by the vast majority of geneticists simply because it does not fit in with the abacus of Neo-Mendelian philosophy. This only shows what I have already emphasized, that they do not realize the omnipotence of their hypothesis. It is quite easy to postulate a Mendelian mechanism for the inheritance of acquired characters. In fact, Waddington, who after all is one of our leading Neo-Mendelians, has done so (Cannon, 1959, p. 83).

The reference is to Waddington's "Canalization of Development and the Inheritance of Acquired Characters" (1942). It would be a mistake to put Waddington in Lamarck's camp on the basis of such associated inquiry, but a direction of greater appreciation of the influence of environment is indicated.

It would seem fair to summarize that Waddington has come to greater appreciation of the organizational aspects of an organism as a functioning whole and as a time-oriented system, and that he has come to greater appreciation of the influence of the interrelationship between organism and environment. The new views with respect to organismic organization will be treated later. Here the role of environmental interaction is further explored.

Stebbins (1969) proposed that:

> . . . we must understand evolution primarily in terms of adaptive radiation and in relation to the communities of organisms of which plants and animals are a part. Furthermore, evolutionary change of any kind is based upon interactions between organisms and their environment. If environment remains constant relative to the adaptive mechanisms of the organism, natural selection will conserve existing variation and the evolutionary line will become stabilized . . . (Stebbins, 1969, p. 34).

The _adaptive radiation_ concept which Stebbins mentions is another reference to the importance of organismic organization which will be discussed later. Again, it is the interaction between organism and environment which is presently in focus.

But before proceeding further, it might be helpful to review some of the presentation of the section on 20th century scientific breakthrough. The earlier reviewed new thinking is crucial to the new view development that follows.

It may be recalled that Bertalanffy (1967 b) was reviewed in regard to the different kind of understanding that prevails since the dissolution of matter with the advent of quantum physics. It was noted, through the illustration of the _Heisenberg relation_, that the object of research is no longer the ambitious quest of true nature. Man now understands that his observation powers are limited to the study of man's investigation of nature, which is always an undefinable variable away from the true nature man would observe.

It would be comforting to draw upon literature of phenomenological and existential philosophy and psychology here to extend the communication of this crucial point. However, Einstein brought the point home from another direction that should suffice. It is assumed that the reader of the present writing is in knowledge of the phenomenological limitations that behavioral science must accept from the findings of larger science if it cares to function as a science.

Bertalanffy, in discussing phenomenological limitations of inquiry, applies the new view to old problems as he states:

> We should not miss noting that the destruction of the dogma of immaculate perception leads to a reconsideration of that ancient riddle of philosophy, the mind-body problem . . . But may it not be that the mind-body problem was created by wrong categorizations? (Bertalanffy, 1967 b, pp. 93, 94).

As previously detailed, Bertalanffy goes on to establish the categories *phenomenology* and *conceptual constructs* in place of the *mind-body* dichotomy. It may further be recalled that the researcher organized both of these categories within the affective domain.

In now opening a discussion of interaction between an organism and environment, the new view is available so that one may speak entirely in terms of organism instead of in terms of mind and body, and so that one may subclass discussion of organism into terms of phenomenology and conceptual constructs (systems of symbols). One barely sets up this perspective and the question immediately explodes: What is environment in this new view?

The question, "What is environment?" is examined in the context of the various notions with regard to the influence of environment upon human evolution. Though the research studied is derived from biology and genetics, the answers are sought for an inquiry into the potential of human education.

Environment, in the sense of present usage, has already been spoken of as momentary life-space, the window of self, in which sensory perceptions are subjectively organized into wholes that offer the organism meaning and value.

Bertalanffy (1967 b) describes this circumstance thus:

> Since early times--even since ancient Leukippus and his theory of eidola or little pictures emitted by the things around us--psychology of cognition and epistemology were dominated by what Kaplan saucily called "the dogma of immaculate perception." The organism is a passive receiver of stimuli, sense data, information--whatever you call it--coming from outside objects; and these are--in a rather mysterious way--reprojected into space to form perceptions which more or less truly mirror the external world . . . In many ways, too numerous to elaborate, modern psychology has shown that this is not so. In a very real sense, the organism *creates* the world around it. William James' "buzzing, blooming confusion" of sense data

> is molded, as it were, by human categories if we speak in philosophical language" in terms of psychology, by innumerable factors arising in biological evolution, in the history of culture, in the structure of language, in the individual development and learning processes of the child. The process of objectification is described in different ways in psychoanalysis (cf. Meerloo, 1956), by Werner, Piaget, Schachtel and others, which probably describe different aspects of a complex phenomenon (Bertalanffy, 1967 b, pp. 91, 92).

Julian S. Huxley (1958) offers another dimension on the same question of the new view of: What is environment?

> There is also the fact (often overlooked or played down owing to the overintellectualization of most philosophers and educators and learned men in general) that in all man's creative activities, including the construction of "visions of destiny," imagination and intuition are as essential as logic and reason. And there is the further fact that if knowledge is lacking on which to build a coherent and satisfying vision, imagination will almost universally be called on to provide mythical explanations and interpretative extrapolations of actuality; and that these imaginative formulations may then canalize and condition the whole culture (Huxley, 1958, p. 453).

It would seem that environment must be regarded to be emergent from input of the senses, imagination, memory, teleonomy, (as program of genetic coding) and other factors, including that heralded servant of mechanistic compounding, pure-chance accident. The term emergent is used to denote a holistic construct of environment in which the constituent parts are subsumed in the closure that creates the whole; this intends a view in keeping with both phenomenological and biological theory as carried in previous pages of this writing.

It is now time to apply this construct of environment in the analysis of research. From an article by Caspari (1958), "Genetic Basis of Behavior," one is offered:

> Many cases are known in which a particular gene has different phenotypic effects in different environments. In other words, genes control the "reaction norm" of the organism to environmental conditions (Caspari, 1958, p. 106).

Since environment is now known to emerge from the window of self, one is led to put the above statement into the new language and read that a particular gene has different phenotypic (manifest without regard to genetic structure) effect, according to the subjective world that a person creates for himself. Thus, it is said that an individual who exercises self direction in the creation of his environment is thereby exercising at least some control over his genetic program; he is indirectly controlling his teleonomy, to at least some extent, and thus moving beyond teleonomy to teleology (purposefulness beyond his determined behavior).

This initial application of the new view to research data at once disproves the notion that man is totally determined by factors beyond his subjective intention. In having found one instance in which man has control over the factors that determine him, the whole question becomes a matter of the degree to which man is determined. With the discovery of a third variable, the model of behavior no longer permits S-R, quantification of what is going on. One has no basis for knowing what derives from the third variable, the created environment, as apart from S and R.

It would seem appropriate to attempt a similar analysis of the phenomena, natural selection that is so central to evolution theory. Stebbins (1969) lists three different elements of natural selection: differential growth, differential survival, and differential reproduction.

By growth it is assumed that certain relative dimensions are defined. In the phenomenological world, this variable strikes many possibilities of natural selection. A woman may see the wealthier man as the "bigger" potential father of her children. The question of how big an object "really is" only pertains in terms of the transaction in which the question is asked (Bruner and Goodman, 1947). It is not the "true" nature, but man's observation of nature that is pertinent phenomenologically.

That differential survival is a phenomenological variable is apparent immediately when one considers the degree to which abortion, infanticide, and suicide influence differential survival.

Differential reproduction also has a phenomenological basis. The researcher feels that documentation of the subjective basis of human sexual attraction would be needless pedanticism.

It is clear from such analyses of environment that scholarship from a phenomenological perspective opens need to know more about the variables which influence perception (as the creative act of organizing incoming information into "reality"). For, in the language of treatment to come, "reality" is revealed to be an open system, in which each individual puts his own world together.

Among important variables of perception is the purpose for which the "reality" is being organized. It is self evident that a person sent out to count rabbits is not likely to make note of all the clouds he sees. The variable of individual purpose is directly significant to education in that it emphasizes that education begins with and proceeds from the subjective self.

This report has heard from the biologists who argue that the only purpose that can be assigned to behavior is telenomic purpose--the execution of the genetic program. However, teleonomy is revealed to be only one of the inputs merged in the creation of environment. The emergent reality may thus be considered to be a teleological product. The suggestion of teleology operating in human behavior should not strike with a shock for those whose personal security allows calm in the face of unknown factors operating in their life. Not this researcher, but the biologists who discovered holistic organismic organization in living organisms may claim credit for the teleological documentation. The model of life they discovered carried a phenomenological variable as an input merging with teleonomy to alter ontogenetic and phylogenetic development. In the new view, each individual has the freedom and responsibility to influence his own "reality" and, further, to influence the evolutionary process in which he is subjectively, actively, participating.

Many biologists have been reluctant to accept the possibility of purposeful self direction of one's development. The reluctance of scientists to accept a description of purpose when a description of process is called for is understandable, but it is as much an error to reject the language of purpose when a program is under way that has a definite end in mind.

Schubert-Soldern (1962) makes the simple point that: "Every living process has an end in view" (p. 221). The present review substantiates a direction toward greater appreciation of genetic programs and organismic organizations as systems cooperating in effort toward particular ends. If the geneticist would prefer the term program over the terminology operating with an end in view, the sematic preference could easily be granted. To accept the notion of purpose does not define that a supernatural power must be identified, and worshiped henceforth. At least, in the present research, theological speculation is not necessary. But open-mindedness is necessary.

The intention here is to emphasize that organismic purpose is inherent in the way a healthy organism conducts its affairs, and that this purposeful behavior makes a difference ontogenetically and phylogenetically. Eventually this will advance the question of how education may best support people in the development and realization of their purposefulness.

Lastly, with regard to evolutionary interaction between organism and phenomenological environment, the review studies the effect of diversity and change as opposed to uniformity and constancy in environment.

It may be recalled that earlier in this report Waddington (1967) described a requirement of evolution to be the need of "continued change in the environment, arising independently of the existence of the organism within it" (p. 113). That requirement is nonsensical in the new definition of environment, since environment is no longer considered to be independent from its constituent organism.

If one assumes that Waddington had in mind a need of change in external input, the problem is narrowed. If we assume personal choice over input variables experienced, an organism may thus intentionally vary its environment and in this process may participate in the evolution of its species. This theory happens to correspond with findings of creativity research which come at the subject from an entirely different direction and arrive at an operational construct of divergent thinking as a measure associating with highly creative people, those who evolve the new. It is necessary to emphasize the danger of uniformity and constancy of external input in the human condition.

Stebbins offers on this subject:

> Mass uniformity of culture is advancing so rapidly that it threatens to envelope the world. If barriers capable of promoting cultural diversity are to exist in the future, they must be build up by the conscious efforts of those people who recognize the value of their existence (Stebbins, 1969, p. 138).

The immediate question that comes to mind is: what is the organismic function of the search of the new? Is it sometimes a teleonomic program to scan for new input experience? The answer is yes, of course. Who does not know that a person who is cold searches for a warm shelter? But the discussion on that level relates to a search in service to steady-state homeostasis. What about developmental homeostasis? Does developmental homeostasis program initiate search for novel input as missing elements in the open-system propensity of one's genetic code? A few years ago such a question could only have been attacked with metaphysical speculation. Today, we may hope for such answers from biological research. Through such inquiry it may be hoped that further knowledge may be gained as to basic human needs that education may serve.

The new view concept of environment as phenomenology and conceptual constructs (Bertalanffy, 1967 b) indicates a humanistic dimension in the natural selection process through which man evolves organically. The individual's experiential realm exists in a state of tension between cultural and organic evolution and tries to create a harmony between these separately evolving phenomena. And the individual, in this crucial role (as this study continues to observe) has the self-directive capacity to influence both the cultural and the organic processes.

It is appropriate here to remind that when all does not go well in this individual organismic role, the failure registers physiologically and psychologically as stress. It requires no training in psychology to know that the world is different (more blue, perhaps, or screaming purple) to a person under stress. Torrance (1965 a) offers a thorough study of the role of stress, not just in a negative sense, but in the whole range of dynamics of personality and mental health. Suffice it here to note that this is another way in which the success or failure of individual experience gets translated into genetic coding of future generations.

New understanding of the nature and influence of organismic organization. The importance of new views in this area are summarized by Stebbins (1969) in "The Basis of Progressive Evolution." He writes:

> . . . the complexity of organization shown by the adult higher animals and plants is matched by an equally complex and precisely programmed sequence of developmental events, each of which is controlled by its own battery of genes. The action of each gene and gene product must be precisely timed with respect to the others, and its intensity of action must be carefully controlled.
>
> These recognized facts have delivered the *coup de grace* to an evolutionary theory that was widely accepted in many quarters twenty or more years ago but since then has been realized to be implausible (Stebbins, 1969, pp. 103, 104).

Another pertinent observation offered by Stebbins relates to mutations, as follows:

> The stabilizing effect that is exerted on evolution by the precise and intricately adjusted pattern of developmental sequences has a second, more important effect. Once a unit of action has been assembled at a lower level of the hierarchy of organization and performs an essential function in the development of organization at higher levels, mutations that might interfere with the activity of this unit are so strongly disadvantageous that they are rejected at the cellular level and never appear in the adult individual in which they occur (Stebbins, 1969, pp. 104, 105).

Here again the organizational aspects of cell behavior are emphasized. Whereas cells were once thought to behave according to their own, self-contained mechanisms, it is now understood that the community program under which a cell is living influences the behavior of the cell, even to the point of whether the cell will work with or destroy a particular new neighbor cell.

Stebbins extends the previously noted direction of Waddington toward greater appreciation of organismic organization. Stebbins sums up his detailed analysis with:

> These considerations lead us directly to the conclusion that evolutionary progress, in terms either of increasing complexity or of increasing dominance over the environment, has not been an inevitable trend but rather an occasional by-product of certain kinds of adaptive radiation. It is based chiefly upon the fact that once a particular level of organizational complexity has been achieved, mutations that elaborate upon this complexity have a much greater chance of success than do mutations tending to destroy it, simplify it, or start a trend toward lower levels of complexity (Stebbins, 1969, p. 124).

Adaptive radiation is defined by Olson as "evolutionary diversification of a group of animals or plants with time. It involves penetration of a variety of environments with accompanying changes in physiology and structures" (Olson, 1965, p. 279). With humans this would seem to further require various independent and diverse cultures.

According to Stebbins, the key concept is that some kinds of mutations have a better chance of surviving than others. At whatever level one studies, nature seems to favor opportunistic radiation to a more complex level (Stebbins, 1969, p. 127).

Waddington contributes further to the understanding of the nature of organismic complexity. His description of holistic function reminds one of Gestalt psychology relationships as he discusses a third element of his theory of phenotypes (the first two were previously described as elements of genetic assimilation). Waddington writes that the third element, the theory of "archetypes," emphasizes--

> . . . the facts that the individuals on which natural selection operates are organisms. That is to say, their character is not a mere summation of a series of independent processes set going by a number of disconnected genetic factors, but is instead the resultant of the interaction (involving all sorts of feedback loops, mutual interference, mutual competition, etc.) of a number of elementary processes for which the individual genetic factors are responsible (Waddington, 1967, p. 114).

The general concept of evolution as a progress from simpler to more complex organization is, of course, not new. The German biologist Woltereck employed the term "unamorphosis" to describe the trend in nature towards more complex forms (Koestler, 1967). Lamarck's theory stressed that the study of both animal and plant life showed a gradation from the structurally simple up to the most complex, but he then emphasized that this did not mean that one ancestral form evolved into the next in a linear chain (Cannon, 1959).

It is interesting that Stebbins feels that the synthetic Darwinian theory fails to account for how mammals evolved greater complexity of organization than reptiles, fishes, worms, or bacteria did. He feels that Darwin's theory fails to explain how successive waves of the ever more complex organisms became established on earth (Stebbins, 1969). Stebbins considers that the theory of adaptive radiation, defining survival advantage for mutations that arrive at greater complexity, supplies the missing process. Other theory attempting to define the basis of the tendency toward greater complexity has been mentioned.

The tendency toward greater complexity of organization and the holistic nature of the functioning processes of cell communities are themes verified repeatedly in research of recent years. Gone are the old atomistic compounding days in which each little cell was thought to have its very own little program to act out for its own independent ends. The new principle of behavior offered by the study of life is cooperation. The extent to which cell behavior changes in accordance with the needs of the larger community is the new dimension of inquiry now offering life insight. It would seem to be consistent with the findings to expect cooperative relationships to extend into such community functions as that of education.

The advent of open systems theory. In reporting this section, the researcher feels like a messenger laying out a map of a new world. The vehicle of access to this world is mathematics. Buvet (1967) writes:

> The mathematical challenge we must overcome in this field corresponds to new necessities arising from the analysis of evolutive properties of systems in which, by nature, many coupled processes have to be taken into consideration simultaneously (Buvet, 1967, p. 128).

In the same paper, Buvet reports:

> From an axiomatic point of view, only a part of the new laws necessary to treat the subject as a whole has been recently proposed in connection with thermodynamics of irreversible phenomena. From a bio-physical standpoint, the most important of these laws is probably the entropic criterion of evolution

> of open systems which was proposed last year by Glansdorff and Prigogine (1964, 1965) (Buvet, 1967, p. 125).

The thermodynamics of irreversible phenomena that Buvet refers to is an expansion of thermodynamics. Classical thermodynamics, or thermostatics, is concerned with closed systems, reversible processes and equilibria. Irreversible thermodynamics now incorporates open systems, irreversible processes and non-equilibrium states (Bertalanffy, 1967 b). The literature of the new world of open systems theory carries the air of a space expedition employing the most advanced science and technology. Bertalanffy writes of the level of this research, "Here we are at the very limits of present science and natural philosophy."

However, having laid out the general contour of the open systems world, it is time to offer more basic communication. The theory of open systems is not older than some twenty or thirty years, according to Bertalanffy (1967 b). The related new developments in thermodynamics are even more recent advances. Classical physics analyzed the universe as a closed system. Clausius' famous Second Law of Thermodynamics asserted that the universe was steadily dissipating its energy and thus was destined eventually to end as a bubble of gas of uniform temperature just above absolute zero (Koestler, 1967). The familiar action-reaction analysis of classical physics is, of course, a closed-system construct, just as the stimulus-response model of the behaviorist school of psychology is a closed-system construct.

In the new view organisms are studied as open systems. However, a phenomena does not have to be a part of a living system to be an open system. For example, a flame is an open system. The term open system may be defined as a system that maintains its complex form and function through continuous exchanges of energies and material with its environment. Instead of dissipating its energy, as in the Clausius' analysis of the universe, the living organism, as an open system, is observed to build more complex substances from what it feeds upon to build more complex forms of energy expression from what it absorbs, and to build more complex perceptual, conceptual, and affective constructs from what it senses perceive (Koestler, 1967). This process of building divergent propensities from states that are closer to random disorder is, by a paradoxical language construct, called the building of negative entropy.

Negative entropy is the description of the "build up" of complexity out of simpler elements. The previous documentation of organismic tendency toward greater complexity of organization was a tendency toward negative entropy. In communications theory, entropy is noise and negative entropy is information. Stating conditions this way, beauty is negative plainness, and happiness is negative boredom.

Koestler (1967) writes of this strange use of language,

> We need not be unduly upset about the use of negative to describe these palpably positive processes, because it merely reflects the scientist's unconscious dread of falling into the heresy of vitalism, of reverting to Aristotle's entelechies, Leibnitz's monads, or Bergson's _elan vital_ (Koestler, 1967, p. 200).

Another way of putting the dynamics of living systems is to say that they develop contrary to what laws of chance would predict; phylogenetic evolution and ontogenetic development work toward more improbable conditions as they increase differentiation and organization. The minimum conditions for such a system would seem to be an energy activating the system and a guidance process directing its development toward ever more improbable levels of equilibrium.

In the previous section, cell communities were found to be working together in complex structures or hierarchical organization that compose whole organisms. At this point, understanding of open systems is added to the description of organismic behavior. Open systems are noted to be active energy engagements under guidance that makes for ever more negative entrophy as a system evolves. Taken together, hierarchical organization and open systems compose the process of life. All that remains is to define the directive factor.

Koestler writes of this last problem:

> In the present theory, this directive factor is called the Integrative Tendency. I have tried to show that it is inherent in the concept of hierarchic order, and manifested on every level, from the symbiosis of organelles in the cell, to ecological communities and human societies. Every living holon has the dual tendency to preserve and assert its individuality, such as it is, but at the same time to function as an integrated part of an existing whole, or an evolving whole (Koestler, 1967, p. 201).

However, the study of General Properties of Open Hierarchical Systems (O.H.S.) is still a very new science. Bertalanffy writes, "General systems theory may be considered a science of 'wholeness' or holistic entities which hitherto, that is, under the mechanistic bias, were excluded as unscientific, vitalistic, or metaphysical" (Bertalanffy, 1967 b), p. 70).

Systems can be studied with classical calculus, group set, digraph theories, topology, and so forth. Multivariate problems lend themselves to computerization and electronic simulation. The frontier of mathematical challenge opened by this new approach offers some of the most exciting potential in science today. Further notes from the earlier reported Buvet paper call attention to some of the possibilities of knowledge breakthrough with new view approaches. The report reads:

> (1) The consideration of some recent acquisitions concerning the behavior of energetically open systems

> brings out some remarkable correspondences between the field of the "living" and the "non-living."
>
> (2) From a physico-chemical point of view, animation of a system may be defined as the appearance of rhythmic response when the system is maintained openly, under continuous non-varying stresses from its surrounding. It corresponds, in the case of electrochemical systems, to oscillating behavior when maintained under continuous electrical or chemical stresses. Lately, experimental and analytical data have been available to account for such properties in the case of systems made of materials comparable to those involved in both the primordial and present biosynthesis.
>
> In conclusion, we have tried to show that it is highly valuable to integrate the discussion of the origin of any of the characters of so-called living systems in the frame offered by new ideas on the energetics of open systems. At the present time, quantitative theorems and data are lacking to make precise many of the points of view involved in such an analysis (Buvet, 1967, p. 128).

A positive aspect of quantitative study of man in open systems construct is that it does not cut man off at the shoulders, figuratively speaking, as the old view of mechanistic rather than holistic quantification attempts so often did.

Open systems theory is so new that one would not begin to predict the findings it will bring in with regard to evolution phenomena, broader life, and the interrelationship of natural phenomena. With respect to the present purpose, it provides a scientific basis for the theory that man is not a reactive but an active organism, and life is not a locked-in but an open-growing phenomenon. It verifies the world of becoming. The question is no longer to be or not to be, but rather, to become or not to become.

Yet, with all of the emphasis on discovery, it might be wise to recall a certain similarity in Koestler's discovery of man:

> Every living holon has the dual tendency to preserve and assert its individuality . . . but at the same time to function as an integrated part . . . (Koestler, 1967, p. 201),

and the Laotse ministry of 2500 years go, ". . . Reveal thy simple self, Embrace thy Original Nature . . . Check thy selfishness, Curtail thy desires."

A redefinition of health. If one accepts life on earth as a condition to be supported, one may define the physiology and/or psychology of health as the process of life enhancement. A more specific focus on health might be limited to the welfare of one organism, measuring indications that are negative and/or positive to the life enhancing process of that holon.

In analysis afforded from the _classical_ model of behavior, health is a condition maintained by physiological and/or psychological recovery from disturbance of steady-state homeostasis. The pursuit of health, in the classical model, is a defensive struggle.

In the new view, body materiality is subsumed by energy program of open systems activated by genetic coding. In this _quantum_ model of behavior, health is more than maintenance of steady-state homeostasis; it is also the ontogenesis of developmental homeostasis. The pursuit of health is an active involvement in growth (as ever increasing negative entropy) in phenomenological and conceptual dynamics. Said more directly, health is self development.

The new view of evolution finds health to also hinge upon harmony of function between ontogeny and phylogeny. A healthy (life-supporting) organism functions ontogenetically and as a member of its phylogenetic holon in developing anamorphosis and negative entropy. Since the principle of cooperation between members of a holon is established, it may be theorized that individual health program will include scanning of the larger community for the triggering of healthful individual behavior. Pursuit of individual health may be expected to be programmed with "scanning" adjustments that attempt closest possible harmony between ontogenetic development and phylogenetic development. Said more directly, health includes social consciousness in self development.

To summarize, healthful individual behavior is a result of programs of steady-state homeostasis, ontogenetic homeostasis, and phylogenetic homeostasis in conjunction with perceptions and conceptions scanned from life-space. The pursuit of health cannot be isolated as an independent program of any separate function, such as that, for example, of steady-state homeostasis. For the new view indicates holistic function of cell communities and thus outdates the kind of atomistic compounding that allows analysis of parts separate from the analysis of the whole to which they contribute. Empirical observations of organismic function offer that the parts of a holon function individually and at the same time function interdependently in working toward end-states. When the end-state is individual growth, all levels of program working for higher development of anamorphosis and negative entropy are fed into the open system in the process of defining healthy individual growth behavior. The consequent behavior necessarily effects gain or loss of health on one level of an open system in order to balance with gain or loss on other levels of the open system. Said more directly, health includes levels of self regulation in support of community welfare.

Finally, the phenomenological and conceptual input of the relationships between species evolution and broader evolution enter variables in individual growth program. This review has not included study of this level of healthful behavior, but it would seem to include self and social regulation in support of ecological welfare. Most briefly, in the new view, health is diagnosable only with criteria of growth supported. It is emphasized that this health construct is empirically based on the research documentation of the various previous sections of this report. It seems to the researcher that this health construct opens promising therapy possibilities beyond the present focus. One may leave the psychoanalysts the challenge of fitting Freud to this construct. Behaviorists would most likely prefer to restrict their response to reaction. This researcher presently limits himself to fitting this growth construct of health to a theory of education.

The measurement of behavioral evolution. Having advanced the review to a construct in which growth in its fullest ontogenetic and phylogenetic sense is seen to be the organizing principle of health, it becomes pertinent to think in terms of evaluating such growth. In a less inclusive construct of growth, a purely physiological taxonomy might suffice for evaluation. In a slightly broader construct, one might borrow from the research of comparative and developmental psychology. In the present perspective, one requires a system of scaling from the lowest order of life phenomenon known to the highest order of life known. High is to be separated from low in this scaling process on the basis of the kinds of change discovered to support further life evolution rather than extinction of the organism involved (as reviewed in previous pages). Such progressive change in organized cell behavior is what is here called _behavioral evolution_. An exhaustive review of the possibilities for classifying the extent of behavioral evolution of a particular organism is not here attempted.

Through the efforts of Ann Roe and G. G. Simpson, two conferences have been held on the evolution of behavior. These conferences involved geneticists, biologists, psychologists, and others (Parnes, S. J. and Harding, H. F., 1962, p. 81). The investigator expects the literature on this subject to continue to increase. However, for the present, the review limits itself to the classification system of R. L. Mooney (1962).

In a brief quote, Mooney introduces his taxonomy as follows:

> Looking into evolution for the progression that men have found in moving from the simplest protozoa to the complexity of man, I have found what appears to me to be a dynamic ladder by which the climbing has been described, i.e. (1) the development of an increasing openness to wider reaches of environment, (2) the development of an increasing centering of action within the organism, (3) an increasing span of sequential ordering, and (4) an increasing selectivity, all four of these operating as one tension system, a development of one (encouraged by specific environmental circumstances) in turn requiring the development of the others. Life has thus been able to evolve its increasingly complex forms (Mooney, 1962, p. 79).

A more detailed behavioral breakdown by R. L. Mooney, is included in Appendix C-4.

From the above analysis of health and growth, one may begin to speculate as to what structure of education may facilitate advancement along indicated scales of individual, social, and ecological development.

The role of creativity in growth and evolution. One of the most provocative relationships of the present synthesis is that between scales of behavioral evolution and scales of creative behavior. R. L. Mooney follows his description of a dynamic ladder of evolution as follows:

> Coming into the assumed peak of evolution at the opposite pole from simplest biological life, I have studied what highly creative people seem to do to cultivate their peak creative experiences. It has seemed to me that they seek (1) to hold themselves open for increasing inclusions within their experience, (2) to focus their experience through self-differentiation and self-realization, (3) to discipline themselves in order both to extend their opening and refine their focusing, and (4) to derive significance from their experiencing through dependence upon increasing esthetic sensibilities. The basic structure for realizing and cultivating life at the psychological level is thus the same as for realizing and cultivating life at the biological level (Mooney, 1962, p. 79).

In extention of the above entry, Appendix C-4 offers Mooney's detailed preliminary listing of indices of creative behavior.

The researcher has had several years to contemplate his discovery of this relationship. The opinion is held at this point, more than ever, that the empirically established congruity in scaling levels of behavioral evolution and levels of creative functioning is a phenomenon that deserves profound consideration in development of theory of education. The investigator envisions that structures of education will continue to inadequately fulfill the role for education suggested by this relationship. On the other hand, it is difficult for the investigator to conceive of educational structure that gives too great an emphasis to this manifest relationship of biological and creative developmental process.

The important comments of Ann Roe are offered as she responded to Ross Mooney's speech in which he presented the above quoted dynamic ladders. Dr. Roe tells first of a winter during which her husband (G. G. Simpson) was working on a textbook in biology while she worked on a paper on the creative process:

> However, what happened was that in reading each other's work at the end of the day, it dawned on me that the creative process, as I understood it from my studies of scientists and painters, was no different from the basic biological functioning of protoplasm, as selection, assimilation, and production; I could express the whole thing in these terms. This is why, since then, I have always said that we do not have to teach people to be creative; we just have to quit interfering with their being creative because this is the way the nervous system functions, too, and perception fits perfectly in with the pattern . . . I think it is terribly important that we appreciate that the process of reacting to the outside world is as you [Mooney] say and that this is basically the same thing as the creative process (Mooney, 1962, p. 80, 81).

The implications and ramifications of the above documented biological and aesthetic growth congruity are too vast for adequate treatment here. However, an observation that seems particularly noteworthy is that in the new view the most highly evolved humans, the persons at the zenith of the biological scale of behavioral evolution, are the highly creative people. If we are to judge by drop-out rate, these most highly advanced humans are among the very people least adequately served by present day education (Heist, P., 1968 b).

An aspect of the creative process that is especially significant to the health-growth congruency is the value-search through which ends are fixed for the orienting of subsequent behavior. In this context, values refer to phenomena and conceptions of intrinsic subjective worth. Aesthetic expression may be thought of as a kind of value-orienting process. It has been noted that the high creative is discovered to be at the zenith of the dynamic ladder of behavioral evolution. In the value-searching role of such individuals, one can note, from another perspective, that such an individual is on the frontier of man's progress. Whereas the growth process of most people involves the achieving of goals widely accepted by their community, the high creative may be discovering the values that will establish tomorrow's goals (goals are here referred to as instrumental means in the pursuit of value realization). Thus, from this approach we again arrive at the view that the high creative is at the zenith of human development in his time and place.

One may say that at the level at which a high creative is living, there are few people to turn to for help in orienting toward further growth; by very definition the high creative is he who is already further developed than most people. However, this construct can be turned completely around to indicate the possibility that it is not the level of development that puts an individual out front in growth direction-seeking. One may argue, instead, that it is the involvement with growth direction-seeking that is primary and that the lift to higher developmental level follows from this basic, initial mode of living. To put this proposition in terms of the present research, the question may be asked: Will a program of self direction for the purpose of self development bring with it behavioral changes that move people up the ladder of behavioral evolution, or is self direction a consequence of development rather than a cause of it? There is a third possibility of dynamic interaction in which self direction promotes growth and growth promotes more self direction. Such dynamic flow of energy is an open system, like a flame, that once started may continue to grow from its own energy generation.

Reference to Further Related Psychological Literature

Further extension of the review of related psychological literature could be engaged in at this point of this presentation. However, the basic empirical and theoretical contribution constituent to the present investigation has been presented. In the interest of cohesive reporting, only brief reference is thus made to related further literature of psychology than that already reported.

Life-science literature originating in Europe continues to warrant close attention in relation to the concerns of this study. European scientists have more closely anticipated the psychology supported by the scientific advances documented in the present review.

Specific reference is made to the work of the American psychologist, G. L. Freeman, of the 1940's, as a significant notation in the history of the present theory development. Freeman's *Systematic Behavior Theory* of 1948 proposed that all behavior is an attempt to preserve organismic integrity by "homeostatic" restorations of equilibrium. It was his thesis that descriptions of total neuromuscular homeostasis offer independent and direct measures of dynamic behavior wholes which in themselves will ultimately outdate gestalt, psychoanalytic, and phenomenological theory. This thinking came at about the time of Lecky's (1945) somewhat comparable *self-consistency principle* of behavior and Heider's (1946) *balance theory*. Various aspects of the psychology of restoration of equilibrium, as in steady-state homeostasis dynamics, have received continued research and theoretical development.

The *steady-state system* behavior theory poses the question of how this thinking should be extended to take advantage of new understanding of developmental homeostasis dynamics, genetic code programing, holistic behavior of cell communities, and open systems theory. One senses in Freeman's work the beginning of a view of behavior as active with inner-directed propensity as well as reactive from outer-directed stimuli. His book, *The Energetics of Human Behavior* (1948) lists 151 *Experimental Studies in Energy Mobilization and Discharge*. Extention of his work may be expected from the "Freemans" of the 1970's.

The work of E. H. Erikson (1950, 1956, 1959, 1962, 1964, 1968) is notable for its cultural significance on the subject of youth identity crisis. Erikson sees many of youth's asocial involvements as attempts to postpone commitments. He finds adolescents unable to make commitments to intimacy, occupation, or value systems. He calls for a period of moratorium in which youth would be afforded freedom and support to gain a perspective for the self direction of their lives.

Erikson identifies a predominant illness of our time, alienation from growth direction. Present day American education fails to sponsor students as individuals directing their own development. It seems that under the prevailing conditions, the growing child tends to give up his self direction, until he is lost, not knowing who he is, what he wants, or what he is going to do under the circumstances in which he observes himself and the world around him. Erikson's proposed moratorium may be a practical attack to the problem, but the solution would seem to require a basically different theory, structure, and practice of education than is now available in American schools.

Summary of the Review of Life-Science Literature

The intention of the review was to arrive at educational theory that is consistent with the latest knowledge offered by science. Toward this end, the review sought to gain the major related viewpoints consequent from basic research of the most recent years. The approach was to draw heavily upon basic research and theory of biology to arrive at the most advanced possible understanding of the dynamics and possibilities of man as an evolving species of life. It was felt that this is the most appropriate approach for the development of theory of education for this period of man's history. On the basis of documentation presented in the review, the following summary is given.

Man may be the victim of an error of evolutionary development which gives him essentially three brains. As his evolution continues, this central nervous system serves less and less well for his phylogenetic survival. A crucial problem is that the difference between the most advanced and the least advanced brain function is so vast that man has difficulty in integrating and organizing his phenomenal and conceptual worlds into behavior of growth as required for successful evolution. Consequent behavioral aberrations result in progressively greater threat and injury to ontogenetic and phylogenetic development as evolution of the species continues. The situation is comparable to that of the spider species that have a brain surrounding their alimentary canal and thus are doomed to starve to death as their brain evolves to greater size. However, man's case is different in that he has the opportunity of self-repair.

The chance for survival of the human species seems to associate with the discovery of means of helping the development of human beings into organisms that are enough growth integrated to reverse the present Doomsday direction. The present study is dedicated to this effort.

In recent years, man has had profound changes of viewpoint which seem to offer his best hope of survival. The critical question is whether orientation can spread fast enough and cause change soon enough to make the critical difference.

The swing to new views leaped ahead with a cataclysmic jolt with Einstein's theory of relativity which dissolved the solid, absolute world to redefine reality as sensory phenomena registering relative displays of energy. Individuals were thus pulled back to the primacy of their subjective experience as the totality of the world that exists "out there."

Further appreciation of the primacy of subjectivity came with the conclusion from physics that man could not measure the world "out there." He could at best hope to measure the dynamics in which his measurement process got in the way of what was going on "out there." The limitations of his means of knowing would always keep him a crucial step away from knowing more than the human condition.

These scientific developments came at a time when existential and phenomenological philosophy and psychology were advancing corresponding viewpoints. The new view perspective revealed each man's life to be his introspective world, unescapably and totally, a responsibility unassignable.

Of course, the above developments were taking place only among the few who move with the frontiers of their time. The millions were still compounding the non-integrated evolution to Doomsday indicated by biology.

Meanwhile, biology made outstanding advance in the understanding of genetic code and its programing. The wonders of intricate cell cooperation evidenced in program of steady-state homeostasis were multiplied by the further revealments of complex program of developmental homeostasis. Atomistic analysis of behavior became increasingly unacceptable. New understanding called for holistic models; for it became understood that the science of individual cell behavior required study of the propensity of the whole in which the cell participated as well as the propensity of the individual cell.

The advance in biology fitted with the epoch-shattering viewpoint shift of larger science. Both gave up a world of mechanistic building blocks for a world of programmed energy systems. In the present, restricted investigation, the new view is empirically evaluated to be support of the theory that human development is an active, energy program integration of self with the holistic program of its sustaining energy system. It remains for philosophers to speculate as to the broader implications of the new discoveries.

The new view dynamic construct of the human condition was proceeded historically by a persistent scholarship of dynamic psychology that reaches back to Aristotle. In the old language, the propensity that moved matter from present to future condition was often defined as conation, a striving for the unrealized. Many variations of analysis were pursued by the different schools of dynamic psychology. One application of dynamic psychology, functionalism, was a significant influence in American schools. Functionalism was so misapplied as to support the theory of biology that man has a critical problem of integrating his conceptual with his behavioral brain function. The present progress of man's failure manifests increasing advent of escape behavior, confusion, resistance, and violent revolt patterns.

The new view is further supported by the continued study of the theory of evolution which not so long ago brought its own cataclysmic viewpoint shift. In an area in which science looks to mathematics for answers, leading mathematicians have recently discarded the basic evolutionary operators of mutation and natural selection and have expressed concern about the state of our understanding of evolution. Random chance, dice-game dynamics, as complete explanations of evolution are increasingly refuted by advances in mathematical analysis. Old answers are again new questions, and in the switch man has won the possibility of crucial responsibility for the energy system in which he participates.

In the new view of evolution, there is greater appreciation of the significance of (1) the conceptual, phenomenological, and behavioral dynamics through which man creates his environment, and (2) the influence of this creative process and product upon the evolution of his species and other participants in his energy system. Suddenly it is again possible that how a man thinks and acts is of critical importance. In the new view, education carries indisputable power over genetic program, in ways under research following Lamarck's too-total rejection, and, specifically, in deciding the possibility of an era of mutations due to radioactivity.

Another shift in evolution theory that gives cause for rethinking the notion that destiny is a cosmic dice game is associated with the observation that an organism can and will reject some mutations and accept others, in accordance with a tendency to advance the complexity with which it executes its genetic propensity. As an aspect of ontogenetic and phylogenetic development, this tendency toward greater complexity of function has been analyzed to be oriented toward increasing negative entropy. That is to say, organismic propensity of development is evidenced to create ever greater departure from random chance chaos of energy discharge. Quite the contrary from chance being king, chance is progressively more totally overcome by a living energy system, and the system thus develops ever more subtle complexity of function in a seemingly limitless propensity toward further ontogenetic and phylogenetic growth.

Individual development recapitulates species development to arrive at the possibility of participating in further self and related system development. Recapitulation theory, once extended beyond evidence and attacked beyond cause, but recently redefined and supported anew, indicates the closeness of the organic tie of individual growth with the species growth from which the individual draws and to which he may contribute.

The new views are beautifully served by the advent of open systems theory that contrasts with closed systems theory with which the outdated classical physics analyzed life as mechanism. An open system is an energy flow system, as a flame, for example. Open system analysis of human behavior sees individuals as active propensities rather than reactive products, as in the previous closed system analysis. The new view is thus afforded a perspective of life as unlimited propensity guided by holistic genetic code program in which member organisms cooperate for self and community growth.

In discovering that healthy cells are natively active in support of self and holistic energy program, health is defined to include the extent to which there is participation in growth dynamics. The new view includes the old views of health as successful survival coping, but in the new view, active growth integration is seen to be a further essential need of an organism attempting to maintain its vitality. This theory is validated by the many examples of organic life ending when it ceases to contribute toward growth. With humans, the phenomenological and conceptual dynamics of active growth integration increase the possibilities of continuing health beyond participation in fertilization or birth. The growth-integration health theory here synthesized opens many psychological and educational possibilities with medical and social implications.

To evaluate health in growth terms, scales of growth are useful. R. L. Mooney (1962) offers a phylogenetic growth scale as a "dynamic ladder" from lower to higher order evolution of behavior. Creativity research offers similar scales from lower to higher order of creative functioning. A discovery of profound significance is that behavioral evolution advance involves comparatively the same variables as creative function advance. This puts highly creative people at the top of the behavioral evolution scale. Among applications of this finding is the theory that education for creative advancement is education for behavioral evolution. In this kind of education, individual value finding and forming is the basic choice-action sequence of creative development.

REVIEW OF RELATED EDUCATION LITERATURE

A Global View of the Research of Self-Directed Education

Bringing the organismic rationale to a theory of education, we gain a concept of development in which an individual, by the very nature of growth dynamics, needs to be the director of his own education. Yet, somewhere in man's history, the "wise" began to take over the directive control function for the "innocent" seeking education. This practice of displacement of developmental responsibility became a widespread human institution. It is beyond the present study to trace here the history that brings about the present system in which the young are expected to accept external directive control of their development because it is offered with good intentions of "education."

It is more to the point to discuss how students have come to accept such external direction of their lives, if not eagerly, at least passively, or perhaps parasitically. But to expedite a positive direction of inquiry, the focus at this point is directed past the old education problems to new education possibilities.

TDS-SDP (STRUSD) Education intends to function as such a new education structure. The structure of education researched here intends a specific and very limited role in a vast field of new possibilities. Experimental studies of various applications to different kinds of schools, such as fine arts and science, different levels of schools, from kindergarten through college, and to various special groups, such as the gifted and disadvantaged, are all needed.

The present study focusses on one design of Structure for Self Directed (STRUSD) Education. This design is termed Treatment A to distinguish the present research from later research of STRUSD Education that may be forthcoming. As a part of a basic study of broad educational theory, the function of Treatment A is to attempt to enhance self direction while meeting the course cognitive objectives achieved by students not under Treatment A. The question thus framed is whether in fact the self direction requisite for creative development can be enhanced without handicapping cognitive education. If it is empirically established that it can be, the door is opened for various applications of this basic finding. In further study, the application of self direction to various possibilities of creative development might be a central concern, but for now it is deemed advisable to restrict study to the basic possibility of self-direction enhancement.

Having developed the theoretical basis for STRUSD Education, the report moves to empirical examination of educational structure that seeks to promote the called for self direction. The present writing limits the reporting of studies that do not include empirical evaluation. Subjective estimates of what happened are not considered to be adequate in themselves. Quantitative evaluation in carefully controlled study is considered to be essential.

The review also limits the reporting of studies that begin with an initial assumption that students are already self-directed. Many studies concern themselves principally with the effects of allowing students to proceed with whatever self-directive propensities they may have in an unstructured situation. This research is only of tangential interest to the present study that proceeds with a closed class structure specifically designed to advance self direction.

Combination of the above criteria of research and relatedness yielded no comparable experiments to the present research. The literature presentation is thus kept to (1) studies that relate to certain aspects of the total present research project, and (2) provocative further research of self-direction possibilities.

Related Educational Organization Research: Higher Education Level

As an eclectic design, Treatment A has little that is novel to the teaching profession, even though the synthesis may be an invention. However, most of the elements of Treatment A are not general education practice, even though they may have successful experimental history. To document the relationship of elements of Treatment A to other experimental education programs, some related programs are reviewed.

The class organization aspect of Treatment A is borrowed from various experiments using varietal structure of large groups, regular groups, small groups, individual consultations, and individual learning with programmed materials--all within one course experience. At high school level, such education has been known as the Trump plan approach (Trump, 1961). The San Francisco State College program (Wilhelms, 1967) and Purdue program (Rubinstein, 1960 a) have already been mentioned as examples of such education at college level.

The United States Department of Health, Education and Welfare has compiled several bulletins describing the above kind of course organization in higher education (Hatch, (1960 a, 1960 b, 1961 a, 1965). Among noteworthy experiments in varietal class organization are those conducted at Antioch, the University of Michigan, the Rensselaer Polytechnic Institute, the Woman's College of the University of North Carolina, Carleton, Oberlin, Grinnell, Morgan State, the University of Colorado, and Whitworth. A noteworthy long-range program deserving mention is that of the New College Plan of Amherst, Smith, Mt. Holyoke, and the University of Massachusetts. In Quest for Quality (Hatch, 1961 a), specific details are given on experimental programs at Michigan State, Oakland College, Monteith College of

Wayne State University, Wesleyan University, Dartmouth, Bard, Goddard, and Austin. These change programs are ponderous, fragmentary, and conservative, at a time in which life-science reveals a Doomsday for man if he does not solve his educational problems very soon.

In a more limited evaluation, the U. S. Office of Education describes the use of varietal class structure as an associated practice of independent study. Reported studies of special interest are: Student-Led Discussion Groups, reported by Leuba (Hatch, 1965) and Introductory Seminar in American Government, reported by Schuck (Hatch, 1965).

Certain studies of group dynamics in education are particularly good sources of information for the educator designing varietal group experience. These studies include the work of Leuba (1963) among others, at Antioch; the work of Webb (1966) at St. Norbert College; the work of Guetzkow, Kelly, and McKeachie (1954) at the Carnegie Institute of Technology; the work of Torrance (1970) at the University of Georgia; and the summary of research in class size offered by Hatch (1961 b).

Leuba (1963) suggests the use of audio-visual communication between instructor and student-led small groups. In addition, he emphasizes that independent group study requires instructor persistence in developing the necessary attitudes, motivations, and skills. Webb (1966) reports trend data from questionnaires, rating forms, and comparative studies of student-directed group discussions in college psychology courses. Guetzkow _et al_. (1954) report an experimental comparison of recitation, discussion, and tutorial methods in college teaching; they found no significant difference between the three groups in "educational outcome." But the Guetzkow study did not include an empirical evaluation of affective-domain educational outcomes. The results indicate that group size is not usually critical as a factor in determining cognitive educational results.

Related Educational Organization Research: Community Wide

Beyond college-level programs, certain community-wide programs deserve reporting. _The Development and Dissemination of Independent Work Materials in an Educational Park_ (Township High School, 1967) in Evanston, Illinois, is an exciting idea if it can be developed as a part of a more comprehensive program of enhancement of self direction. In this project of a disadvantaged inner city area, audio-visual links provide quickly available instruction materials. A wide variety of multi-media materials are available for study structure ranging from large groups to individual study carrels.

The Educational and Cultural Development Center of Mocksville, North Carolina (Davis County Board of Education, 1967), also federally funded, includes promotion of self-process of learning, improvement of race relations, and encouragement of community participation in informal learning activities. Listening and viewing centers are provided. Very modern equipment is employed, including a video-corner. Special functions are an art materials center, materials preparation center, library processing center, and adult education center.

Another federally funded project is that of Developing a City Center for Learning, in St. Paul, Minnesota (Independent School District 625, 1967). This is an attempt to revitalize education within the core of the city. The center has six components: student development, teacher development, curriculum development, educational resource center, community center, and center for learning schools. In addition to serving the larger community, the center will service approximately 47,000 students from kindergarten through twelfth grades.

The above reports do not claim to be all-inclusive of national, community efforts. Still, under the imperative of the present crisis, there are shockingly few attempts of community-wide self-development programs, or any other projects to assist growth integration. The question of variety in organizational structure is not so important at community level as the question of what forces block the needed community action.

Related Educational Organization Research: Secondary and Lower Grade Levels

In regard to secondary level education, J. L. Trump (1961) has provided much of the literature for present conceptions of class organization for independent study. Analyzing programs from a Trump plan perspective to identify successful program elements, Evans (1968) did a comparative study sampled from the 113 schools, of the entire United States, that he identified as having independent study programs.

The Evans research recommends that independent study needs to emphasize (1) providing for individual differences among students; (2) developing an inquiring mind; and (3) developing self-initiative.

Evans further summarizes that in successful programs there was a strong pattern of rules being enforced, unsuccessful programs had stated rules that were frequently not enforced. These findings support the rationale of the present research.

A recent summary of the broader subject of Independent Study in Secondary Schools is provided by W. M. Alexander and V. A. Hines (1966). This work systematizes information and describes and analyzes practices in 36 schools drawn by random sampling from a list of 317 schools (over the entire United States) reported to have independent study programs. Grades 7 through 12 were covered. One of ten categories of independent study researched has the objective of developing the self-directed learner, as was the objective of the present experiment. Other categories center more upon giving free time to the student than upon giving him supportive structure for the development and exercise of self-responsibility.

Alexander and Hines report that one of the first discoveries of school visits was that independent study is more common in discussion and writing than in actual practice revealed by investigation. Of the random sample obtained from the 317 U. S. high schools which had been screened as being most active in independent study programs, about half turned out, upon visit, to have programs so inadequate that they did not even meet preliminary definitions of Independent Study. Alexander and Hines report that half of the selected schools had so little self direction practice that the visit to them did not seem worthwhile. In contradiction of the widespread view of the 60's era in which students were supposedly gaining more independence, the study showed that some of the schools were doing less, in independent study, than they had done in previous years.

Alexander and Hines report that most schools have done little to determine the extent to which the goals of their independent study programs have been realized. Only one comprehensive research follow-up study was discovered. There was no empirical study of the developmental effect upon the total individual. Program planning or cutting was largely based on intuitive judgment.

From opinions offered by the students, Alexander and Hines summarize that the value of independent study includes self-expression, adaptability, teacher-pupil interaction, integration of knowledge of subjects, cultural growth, self-discipline, and "parent interest." This is consistent with the theoretical expectations of the STRUSD rationale, according to which the specific gains listed by the students are critically significant for self-repair in human development.

No similar survey to that of Alexander and Hines is available for the lower grade levels. The literature carries fewer reports of research on self-directed education at lower grade levels in American public schools.

Summary of Related Educational Organization Research

The review has studied higher education, community-wide education, and secondary and lower grades levels of education. Observing nationally, from this study, it is concluded that there was insufficient practice and evaluation of self-directed education in the 1960's to warrant expectation that needed changes will come about through further evolvement of current school policy. If such change is to come in the 1970's, it will probably be from diffusion of the experience of specific research projects.

General Review of Related Specific Research Projects

Dlabal (1966) offers results in his use of the CPI to distinguish teachers who work successfully with culturally deprived children. Teachers who liked working with culturally deprived children scored significantly higher ($p < .05$) on Do, Cs, Sy, Sp, Sa, Wb, To, Gi, Ac, Ai, Ie, Py, and Fx. (Figure 1, in Chapter 3, lists the CPI scales here abbreviated.) All eight scales employed for indicating self direction in the present research are among the 13 scales associated with success in teaching the culturally deprived. The present research may, therefore, be interpreted in relation to the Dlabal study.

Ridgewood High School (1965) assumed national leadership in opening a Trump plan of class organization as early as 1960. After four years, it was concluded that the major problems occurred in scheduling seminars and independent study. Ridgewood showed national leadership again in solving this problem by becoming the first school to operate with a computer-built modular schedule.

Further notations emphasized by Ridgewood after four years were: (1) a need for closer student-teacher relations; (2) a need for a "learning laboratory" in each subject field; and (3) (in a different vein) seminars are not to be reserved for honors programs--they can be effectively employed with low ability students.

Melbourne High School (1966) in Florida showed an even stronger bent for the future in naming its program Space Age Programming. In addition to the usual Trump plan varietal structure, this program went to nongraded organization based on five phases of development. Phase 1 offered special help in small classes. Phase 2 emphasized basic skills. Phase 3 provided average learning experiences. Phase 4 went to further depth. Phase 5 put students completely on their own responsibility in their learning of college level courses.

Melbourne reports the following conditions: courses are selected by the students in line with their own aspirations. The purpose of the nongraded organization is to shift the responsibility of education to the student. The teacher's role is to lead students to acts of discovery. Lectures occupy a maximum of 20% of the time. The balance is divided between small group and individual research and experience.

Enthusiasm for the Melbourne experiment is warranted, but there is also cause for sober concern for the lack of a guiding philosophy other than experimentalism. The problem is demonstrated by a quote from the final summation (called The Spin Out) of the 1966 project report:

> There is an aura of adventure as whole new departments are created to fit the burgeoning needs of students in order that they might meet the ever-changing social and technological demands of this

> century. A fine arts department is now being evolved since it is becoming more and more apparent that one of the functions of education should be to assist students in the wise use of leisure time now that we are approaching an age in which every individual will have large chunks of disposable leisure time (Melbourne High School, 1966).

With this glorification of school as the supplier of the needs of technology, the Melbourne experiment takes a familiar position of the school of experimental functionalism. Some educators attribute to this school that condition in which the most creative students choose to become drop-out transients (Heist, 1968 b).

However, the Melbourne criticism need not call for the destruction of space age technological instrumentation of education and return to the 3 R's and the willow stick. The Melbourne varietal class structure, the nongraded organization, and the technological facilitation is experimentation that has been favorably supported by research (Trump, 1961).

The following projects are noteworthy sources of further information.

Central School District, Environmental Learning Center, 1966.

Congreve, W. J., The University of Chicago Project, 1965.

Fresh, Free Responsible Education with Self-Direction and Honor, 1967.

Niskayuna Central School District 1, Independent Study, A Continuous Program from Elementary through Secondary Education, 1966.

Certain college level research also deserves specific review. One such study is that of K. Koenig and W. J. McKeachie, Personality and Independent Study (1959). This work examined whether (1) highly independent students would behave differently from (2) students with high affiliation needs and (3) students with high need for achievement, when participating in independent study organization that uses small group experience as a part of the educational method. Since the educational structure of the experimental group was similar to that of Treatment A, the results are meaningful to the present research.

In the first analysis of the data, there was no separation between (1) and (2). A significant finding was that women with high achievement needs preferred the experimental method to conventional education; the middle-range need-achievement women preferred conventional lectures. Also, the women who were high Flexibility scorers on CPI scales participated freely in the small groups, whereas the men of the same high Flexibility category were significantly less likely to participate in small groups.

A second study of the Koenig and McKeachie research, at Carleton College, showed that students who think the instructor should be authoritarian tended to do poorly in independent study; this result runs parallel to other reported research establishing a need for transitional structure through which the authoritarian-oriented student may be conditioned to a more self-directed life style.

Koenig and McKeachie interpreted no definitive basis for excluding certain personality types from independent study and small group participation, but they advised that some cases might need special training and attention in order to help them learn how to learn in these situations.

A generally noteworthy college level program is the Model of Teacher Training for the Individualization of Instruction, reported by H. C. Southworth (1968). This model includes training in guidance and clinical setting. Guidance procedures include the development of competencies in self-direction, inquiry, and personal-social characteristics. Although the model is somewhat inconsistent with the training needs of a teacher for a truly self-directed system of education, the plan has many good features. Certainly this report can not argue with the announcement, "The entire new model, guidance function is aimed toward self-development, both professional and personal." But it is not clear to what extent guidance direction is made a responsibility of the student, with the teacher in a service role.

A program of Runkel (1968) at the University of Oregon entitled The Campus as a Social-Psychological Laboratory bears special interest. The design of the course rests on the principle that students are always learning, and humans are always seeking freedom. Among other innovations, Runkel uses former students as consultants. He more or less frees his students to work on their own, with himself supporting, servicing, encouraging, and, upon request, advising them. The program is valuable to the current investigation on self direction.

Bivens, Campbell, and Terry (1963) show that self direction does not necessarily lend itself more to programs for gifted students. Bivens _et_ _al_. show that low ability associates with a preference for linear program rather than an inability to be self-directed. These researchers report that by the time students are in the ninth grade, they have developed a strong habit of linear study methods that acts as a variable influencing the effectiveness of self direction. The conclusion of Bivens _et_ _al_. is that the low-ability subjects of their research may develop a stronger reliance on structured course work. The recommendation is, to quote: "Some degree of coaching or retraining in the use of self-directing materials might be effective."

Bivens _et_ _al_. indicate a basis for a new look at the education of the culturally disadvantaged.

Related Literature of Affective Education

The next category of literature to be considered relates to that aspect of STRUSD Education that may be called sensitivity training, creative development, self-concept enhancement, affective education, or some term that better represents all of these processes.

O'Hare (1968) offers an excellent analysis of sensitivity training possibilities in teacher education. He reviews the subject generally and also describes the program of sensitivity training of the Lehman College teacher education program. O'Hare suggests that, in the future, sensitivity training will place more emphasis on the ways in which teachers can, not only cope with current conditions, but become active agents for changing conditions.

Johnson and Seagull (1968) extend the O'Hare theme into further examination of teacher education programs. These scholars remind that the products of lecture courses are not to be expected to have a background in classroom possibilities for developing creativity and self-awareness. In college teacher-education programs, there is "a dichotomy between actions and words . . ."

Johnson and Seagull report that in teacher-education programs, quiet attentiveness is valued over intellectual aggressiveness. The consequent teachers are said to be deficient in ability to foster self-actualization in children. They propose that teacher education must encourage creativity and experimentation and provide a model for flexible, dynamic, innovative action, so that mistakes may be viewed as opportunities for growth and development.

Insight as to the relationship between teacher personality and the consequences of that personality is afforded by the research of D. N. Aspy (1969) with the relative achievements effects obtained by teachers of high and low self concept. Aspy found one's self concept to be positively related ($p < .05$) with achievement gains that involve thought organization, such as paragraph meaning, language, and word meaning. Rote learning (spelling) was negatively related with teacher self concept level, although with less than .05 significance. The Aspy findings apply not only to this section on affective education of teachers, but also to the review of related teacher performance studies.

Knowledge with regard to effects of attempts to foster creative thinking in teachers is afforded by the research of M. F. Compton (1967). In this research, creativity was operationally defined with Guilford tests of the factors Spontaneous Flexibility, Ideational Fluency, Originality and Sensitivity to Problems, plus a test of creative thinking.

It should be noted that this schema of "creative thinking" is different from the affective schema of the present research of total personality involvement in self direction. The present research uses the term invention when the process defined involves only conceptual aspects of the greater whole of growth-integration, behavioral-evolution, and creative-development process.

Nevertheless, Compton's results relate to the present research. Using random assignment of 36 teachers to experimental and control groups, a program of brainstorming was tested against a control program of round-table discussion approach to solutions. The conclusion was that brainstorming in a graduate, university course could result in greater creative-thinking ability. A further conclusion is that once ability to think creatively has been developed it tends to increase further during the passage of time. Compton's findings provoke speculation as to whether self-directive processes also continue to develop once they are initially enhanced.

A much more comprehensive program, and a program more consistent with STRUSD Education, is that of the San Francisco State College Teacher Education Project (Wilhelms, 1963). This experience offers a wealth of knowledge. The three-semester program was based upon a new premise, for which Wilhelms gives credit to Combs (1964). Combs turns his back on the "competencies approach" and argues for a "self-as-instrument" concept of teacher education. The approach intends to develop better teachers through self-development of the person within the teacher, along with self-education in the content and tools of teaching.

In also drawing upon the monumental work of Hughes (1962), Wilhelms arrived at the construct that better teaching was chiefly the outgrowth of openness of personality, buoyancy, positive outlook on life, and supportive warmth--i.e. sound mental health.

The San Francisco project was consistent with Combs' (1964) philosophy of education:

> Modern perceptual psychology tells us that a person's behavior is the direct result of his perceptions, how things seem to him at the moment of his behaving. To change a person's behavior it is necessary to help him see himself and his world differently (Combs, 1964, p. 369).

To assist the growth of such a person, the San Francisco project structured seminars, small group sessions, and individual conferences. Experiences in the field were also scheduled. Field experiences are excluded from Treatment A due to limitation of means rather than difference in rationale. And, as with the present study, the San Francisco project aimed for psychological freedom leading to clearer and clearer perception of oneself, "revealing, exciting, perhaps baffling" experiences, and feedback from learning environments more than from lectures. The term "exploratory experiences" was central. Two hours a week were devoted to "sensitivity sessions" to which most students became firmly committed.

In retrospect, Wilhelms (1967) reports that subsequent actions of students indicate they have grown significantly in autonomy, in sensitivity toward others, and commitment to chosen ideals. He finds that this was a self-selection process through which some candidates withdrew from teaching without self-respect being impaired.

Looking forward, Wilhelms summarizes from the San Francisco project that a teacher will never understand and accept his students until he first accepts himself, and for that, something far beyond mere didactic instruction is essential.

The present study departs from the San Francisco project in that it (1) proceeds through a transitional authoritative structure for the enhancement of self-direction, and (2) is only a one quarter, five hour course, and, as such, is a far less ambitious project.

The researcher has also derived noteworthy benefit from the Purdue model, Psychology 120 (Rubinstein, 1969 a). As noted in the TDS-SDP treatment, Rubinstein avoids lectures that say verbally what a student can get visually without coming to class. For Rubinstein, classes are reserved for experiences that students cannot constitute individually. The present Treatment A departs from the Purdue work in having a transitional authoritative structure. Purdue, Psychology 120, assumes self direction as an initial student behavior.

Further affective domain research in teacher education is described by Leonard (1968). He tells of Carl Rogers' encounter experiments with teachers and George Brown's, U. C. of Santa Barbara program funded by the Ford Foundation. The latter is given as an example of teacher education research using sensory awareness and other techniques, as well as encounter in an Esalen program, to effect a new educational environment in which there is increased freedom and learning facility for students.

A program in keeping with the present schema of creative development is advanced by the exciting, federally supported project of Independent School District 834, Stillwater, Minnesota (1967). The title of the project is a succinct description of the intention: *Uniquely coordinated inservice program for a school to promote large-scale change in professional staff behavior and demonstration of individualized instruction in a flexible facility*. The title suggests that the program may be a significant advance project of new education practice. The project description gives objectives that are shared by STRUSD Education. One goal of the project is to define the role of the teacher as a "learning facilitator." Another goal is to prepare information that will assist the development of student initiative and responsibility for his own learning.

The Stillwater project is a bright light in contemporary experimental education. One must wonder how aware the leadership is of the real danger of such far advanced program getting misdirected to another form of displacement of student responsibility.

The Melbourne emphasis upon the space age may serve as a reminder of how experiments in education can become a blast-off for technology rather than humanity. In this circumstance Teilhard de Chardin's (1956) defined crisis of modern man remains unmet by educators.

Research Review of the Problem of Student Initiative

American education has not been characterized by trust in individual initiative without supervision in matters of learning. Studies pertaining to the problem of student initiative and means of coping with it are here reviewed.

The research of Bivens et al. (1963), referred to earlier in its relation to low-ability education in grades six through eleven, offers that by the time students are in the ninth grade they have developed a strong habit of linear study methods that conflicts with self-direction of learning.

It is assumed that this behavioral habit develops progressively from the first day of school as a child continues to be a participant in a system that structures and orders his process of education for him. Putting the Bivens et al. report into organismic language provides the statement that the initially active organism may be made in creasingly reactive. In terms of behavior modification psychology, this is to say that (with the progressive displacement of responsibility) the stimulus determines the response ever more definitively. The growing child may eventually be trained not to act until acted upon.

Campbell (1963) studied higher-ability students of grades six through eleven. A combination of self-direction techniques maximizing student control was compared with a more conventional instructional method (usually a linear self-instruction program) which presented the same content but minimized student control. Results indicated that self direction was most promising in problem solving and in learning that involved the transfer of ideas to new situations.

Campbell reports that the most promising single result was the beneficial effect of four hours of practice in self direction during which critical self-appraisal of study tactics was encouraged. This finding with a mathematics task, and the results of a larger experiment with a geography course, suggested to Campbell that to make self direction successful, it is necessary to first remove the students' strong habit of passive acquiescence.

Self direction was significantly superior (cognitively analyzed), but only after coached practice in self direction. This result is explained on the basis of theory and research indicating that meaningfulness and motivation are the most important factors determining learning rate.

Campbell explains how these factors are associated with self direction.

Since the coaching was critical to the success, the research supports the STRUSD Education hypothesis that a structure to facilitate transition from linear-method to self-directed learning is necessary. The Campbell and Bivens _et_ _al_. studies employed coaching structure that consisted purely of getting the students to evaluate critically their own procedures. There was no direction as to what procedure to use for self improvement.

Class grades were significantly lower ($p < .05$) for non-adaptive self-directors (those who stayed with the linear program design in a situation that called for self-direction). This was true despite slightly higher ability scores for the non-adapters. Students who were reluctant to be self-directed earned significantly lower grades despite greater test-indicated ability. Reluctance to be self-directed and lack of motivation in other class work was associated. When the non-adapters were omitted from the self-directing group, the superiority of self direction in learning of mathematics was significant at the .01 level.

Since the review has established that linear methods have prevailed over self-directed methods until now, the generalization is possible that college students may be expected to behave as graduated subjects of Campbell's research. As a study at college sophomore level, the present experiment may be expected to have subjects who have had at least 13 years of conditioning in linear study habits, to a greater or smaller degree.

Knowledge of the dynamics of self-directed education at higher education level is available from the Gruber and Weitman (1962) university-wide experiments. In all, Gruber and Weitman studied 19 courses of various departments of the University of Colorado over a period of two years. Twelve studies were direct experimental-control comparisons, as in the current research. A general negative reaction to participation in the self-directed study was expressed in the students' evaluation of the courses. In almost every case, students indicated preference for conventional methods. Gruber and Weitman mention that morale problems were also associated with similar experiments which have been reported by Eglash (1954), Neel (1959), and Beach (1961). The student attitude consistently encountered was, "This method won't work unless we are brought up in this system."

This finding is in agreement with Campbell's and Bivens' work that concludes that program for self direction must cope with the student's strong habit of passive acquiescence.

These research findings yield the empirical evidence of a need of Teacher-Directed Structure for Self-Directed Process of Education.

One might think that the search for appropriate STRUSD Education, in the face of negative student attitude toward self direction, is self-defeating. That this is not true is revealed by the most interesting further finding, of Gruber and Weitman, that there is an "emotional lag" in which the student reacts unfavorably to the particular self-directed course he has just finished while he demonstrates a more positive general attitude toward independent intellectual work.

In the Colorado course in educational psychology, self-directed students were slightly superior on the final exam, on fifteen-month post-test of retention of subject matter, and on post-test of curiosity about educational psychology. However, the mean standard score for seven experimental courses showed self-directed students significantly lower on the final exam in five of seven courses. The cause of the poorer performance is explainable on the basis of the empirical studies here reported. It is established that the years under the linear-method of education condition a dependence upon the rule of external authority. It may be recalled that the life-science review established that such inability to be self-directed is to be regarded as an illness that is hastening the approach of Doomsday for homo sapiens.

In further findings of Gruber and Weitman, it is stated further that students of "lower general ability" sometimes profited the most (academically measured) from self-directed study. The Colorado findings thus indicate the need of additional personality research of the dynamics of what has long passed as "low ability." Bivens et al. (1963) indicate that the extent to which a person has been conditioned from self direction toward passive acquiescence may be a significant variable of learning rate. The possibility of improved learning rate for "low ability" students through STRUSD Education is indicated. In this circumstance, it is fortunate that the personality variables that associate with self direction also associate with success in working with culturally deprived children (Dlabal, 1966).

Gruber and Weitman's important study of student initiative also found that self-directed study increased students' curiosity about the subject field, as measured by a rise in questioning behavior ($p < .03$). In addition, there was an increased tendency for students who were required to do independent work to go on to a further course in the same area ($p < .10$). Also, there was a highly significant increase in the subsequent amount of reading of serious books and other professional and serious literature ($p < .001$). Gruber and Weitman report that these findings run parallel to Kersh's (1958) findings in a laboratory setting and Beach's (1961) findings in another classroom experiment.

When one relates these results to the reported studies of motivation and meaningfulness (Campbell, 1963), a dynamic growth process is revealed to build sequentially: self direction, motivation of interest, discovery of meaningfulness, further self direction, further motivation of interest, . . . further discovery of meaningfulness, still further self direction . . . . Gruber and Weitman's observation of these dynamics led them to the conclusion that a little attention by each teacher to the training of his students in independent work might pay off very quickly. Gruber and Weitman's hypothesis with regard to training for self direction suggests the possibility of a revolutionary change in American education. Bertalanffy's (1967 b) open system propensities frames a biological rationale for the dynamics involved which, once aflame, would continue to live and grow as independent energy systems.

The most ambitious intention with respect to awakening student responsibility at college level may be the New College Plan of Amherst, Smith, Mt. Holyoke, and the University of Massachusetts (Hatch, 1960 a). This plan proposes to borrow from the Antioch experience. The New College curriculum is reported to have the intention of establishing independent behavior through intensive training at the outset of college and thereafter by continuing to provide situations which call for the habit of initiative.

As of 1965, the New College was still writing, "More Power to Them" (Barber, 1965) with reference to students who demonstrated initiative, but review of the New College organization does not reveal that the students have yet assumed power over the educational process.

The purpose here is not to criticize one of the very few attempts of moving colleges toward greater self direction in education. The purpose is to communicate that the information as to actual change accomplished is insufficient for evaluation of the promise of this program at this time.

Moving from the New College Plan's general attack of the problem of student initiative, the review looks at specific and practical means of handling the accountability aspect of initiative.

The effectiveness of another work report plan is reported by Ricard (1965) with regard to the development of a means for stimulating, guiding, and evaluating a student without interfering with his self direction. Ricard reports that the program was well accepted by the students. In this method of accountability, employed in biology, students are provided a Selection Form in which they are to supply details of a project of evaluating an hypothesis formulated by themselves from a self-selected topic.

It is expected that accountability techniques that do not interfere with self direction will continue to be invented as new educational structure is developed. In developing education designed to function as transitional structure for making students more self-directed, there is a need of report system that affords maximum freedom.

Review of Research Evaluation of Self-Directed Education

Numerous studies have undertaken the evaluation of relative cognitive gains achieved in various kinds of study organization and methodology. Perhaps the most comprehensive evaluation of self-directed study at college level to date is that of Gruber and Weitman (1962). In the final examination of seven courses, the mean experimental student was at the 41st percentile.

Gruber and Weitman did not attempt to measure personality shift empirically as a result of self-directed education, since none of the Colorado courses were specifically structured for the enhancement of self direction.

The studies of Bivens *et al*. (1963) that included coaching of self direction did not include evaluation of personality shift, undoubtedly because only four hours of coaching were involved, and thus the likelihood of significant affective results would be remote.

P. J. Elich (1966) conducted an adequately controlled study of "independent study" which we assume for the evidence was self-directed study. There were no significant differences among the groups in grades received or in scores on tests of retention and transfer. Once again, there was no measurement of possible shift toward more self-directive personality.

A course organization somewhat similar to STRUSD Education was researched by Georgiades and Bjelke (1964). Thirty-eight experimentals were matched with 38 students from regular classes. The evaluation used scores on the cooperative English Test. There was no significant difference between groups. No empirical measurement of personality effects was attempted.

The combination of experiment and evaluation undertaken in the present study was not found in other research.

Review of On-Going Growth-Integration Projects

Among worthy projects, many not here reported, there is an approach to education being advanced in California called Self Enhancing Education (SEE) (Randolph, 1966). SEE is concerned with building self esteem. The program assists the transition from theory to practice at all grade levels of elementary school. The theory promoted is that the power to feel strong and worthy is a powerful motivating force in each learning opportunity.

This theory is supported by Barron (1963), who associates ego strength with creative ability. Self enhancement is further developed in the Strens construct (Bower & Hollister, 1967) building significant educational innovation upon the importance of ego strength to learning, creativity, and the whole of development.

The Becoming Curriculum, under development by the Assist Center (1969) as a means of promoting self-actualization from the very beginning of the school experience, is another most important program. As of this writing, the funding for this program has not been renewed. It is assumed that this circumstance reflects the philosophy of the educators controlling funding.

Educators who would attempt change may find support in the growing literature of creative education. Review of this broad and often very worthwhile literature is impractical here. The Creative Education Foundation, State University College at Buffalo, 1300 Elmwood Avenue, Buffalo, New York, is an organization established to serve the needs of those who would promote creative education. S. J. Parnes (1966) offers the perspective advanced by this organization.

The design of Treatment A calls for special reference to some of the literature offered by R. L. Mooney (1962, 1966 a, 1966 b, 1969). A portion of Mooney's A Preliminary Listing of Indices of Creative Behavior is carried in Appendix C.

At the college level, Antioch continues to explore and evaluate new educational models. S. Baskin and R. Churchill (1961) report one such project with the usual results of few academic differences between experimental and control groups. The Antioch College perspective, as of 1961, is important because of the national leadership that

Antioch has assumed for self-directed study. With reference to independent study procedures the Antioch report (Baskin & Churchill, 1961) reads:

> Antioch College does not view these new methods of instruction as a panacea for higher education's twin problems of quality and quantity. Nor does it view them as a glorified do-it-yourself plan that works simply by turning the student loose on his own; for the instructor must carefully select and structure the student's learning experience. The instructor's job, although it may be different, is no less difficult (Baskin & Churchill, 1961, p. 4).

It is questionable whether the above-communicated philosophy of education puts the student in sufficient power to carry the responsibility he must bear in order to fully integrate his education with his organismic development. Is it true that the "instructor must carefully select and structure the student's learning experiences?"

The researcher leaves this question open, and passes on to the most recent development in which Antioch has a key role--that is, the organization of the Union Graduate School (Watson, 1970). This involves the joining together of a group of progressive and well recognized colleges and universities for the sponsorship of doctoral study program that is not available in more conventional university programs. The student is afforded a great deal of freedom in moving from campus to campus and to whatever place and station he may find appropriate to his development. The program description begins:

> The Union Graduate School has developed in response to the fact that for many competent students existing graduate programs are too limited, too prescribed and inflexible, and too poorly adapted to the urgent needs of a society in crisis. The Union Graduate School offers opportunity for students to design programs especially suited to their objectives . . . (Watson, 1970, p. 1).

Antioch recognizes a crisis. The Union program description reads like a dream come true, but from the lessons of history one must recognize that the printed word is not the deed. In being ahead of its time the Union Graduate School may expect pressure from the larger community of higher education.

Unbelievably complex problems face those who want to put ideas into action in the concrete form of a new school program. In a case in mind (Dag Hammarsköld College, 1969) a dedicated educator of wide reputation has committed his life to establishing a new kind of international education. Yet, in spite of impressive professional support he has not yet been able to open the doors of his new college.

Meanwhile, student pressure for change continues to build. Farber (1970), writing of *The Student as Nigger*, proposes that old walls will have to come down, perhaps with violence, before a new education can prosper.

Review of Education in Ferment

The Center for Research and Development in Higher Education (Wilson, 1969) has established a research project that studies *Education Impact and Student Development*. The activities of this study are designed to (1) determine how various aspects of the college environment affect different types of change in different students; (2) contribute to the formulation of theory which will help to increase understanding of student change during college years; and (3) provide decision-makers with a better basis for planning and implementing a system of higher education.

Since a study of this kind is limited by the questions it asks, it is relevant to note the previous work of the organization that is asking the questions. The Center's publication of The Creative College Student: An Unmet Challenge (Heist, 1968 a) indicates a willingness to look beyond the surface.

Studies underway in the above projects are investigating student subcultures, exceptional and creative students, drop-outs, and student-faculty relations. The program is projected with increasing emphasis on problems of black students, college drop-outs, student activists, and other nonconforming elements.

R. G. Scanlon and G. Heathers (1967) offer an educational process analysis in a publication available from the State Federation of District Boards of Education of New Jersey. Scanlon presents the History of Individualized Instruction, and Heathers presents Self-Directed Learning: the Master Key to Educational Reform. In the latter paper it is hypothesized that educational reform will be accomplished through teaching all students to be competent in planning and conducting their own learning activities.

For a broad view of the subject of Independent Study, there is the book of D. W. Beggs and E. G. Buffie (1965). This publication covers course and class organization, flexible programming, technological aids, the administrator's role, and in-service programs for independent study. In addition, separate chapters are included on The University of Chicago Project, The Brookhurst Junior High School Program, and a model of independent study in the humanities.

Another excellent, comprehensive presentation is offered in a book by F. B. Brown (1968). This work provides an historical perspective, discusses class and course organization, and details special activity of varietal class structure, such as small group work. The final chapter contains vignettes written by high school students about their experiences in independent study.

Books covering the general subject of self-directed education discuss the subject more at high school level than at lower or higher grade levels. At higher education level, one discovers a lack of adequate text coverage of the possibilities and problems of self-directed study.

Meanwhile, publications such as The Report of the Commission on Student Participation in University Life

(Knock, 1969) offer guidance as to college conditions and possibilities. The Commission offers a rationale for student participation in university life, and considers how such participation may be accomplished within the structure of the Miami University of Ohio. Emphasis is placed on student involvement in policy-making. Many dimensions of student life and university affairs are examined with the objective of providing a framework within which a student may accept greater responsibility for the consequences of his own behavior and for planning his own future.

The intention of the Commission would seem to be laudable if, by confinement of the students to a framework, a "cage with an open top" (Torrance, 1965 b) is intended.

The spirit of the cage opened by student initiative is voiced by H. D. Gideonse (1968), Chancellor of the New School for Social Research. His address, Student Activists and Faculty Irrelevance, strikes to the heart of higher education's failure to meet the needs of students and failure to promote the future of mankind. His thinking runs parallel to the present theoretical synthesis calling for focus on values within the school experience. A direct quotation is offered:

> I don't necessarily draw the conclusion that because value judgments are coming back into intellectual and academic respectability this will by itself solve our problems. But it will tend to correct the bias of modern higher education which is in favor of detachment, objectivity, and the quantitative over the qualitative in its method.

> This new viewpoint is, therefore, likely to restore relevance to the curriculum as far as the young are concerned. I know of no subject that gives a more exciting edge to what is taught than an introduction of this future-oriented perspective into the present curricular outlook.
>
> Immediately, the student is given a sense of "Now, you're talking. Now, you're dealing with where I live. Now, you're teaching me techniques and methods of getting at the problems that give me heartache." To the extent to which you take the able student's mind off irrelevancies and put it back on the relevant, you will restore health to the academic enterprise.
>
> But, let's have no illusions about this. Such a revitalization of the student's concern flies in the face of the most deep-seated, vested interests and prejudices of a very large majority of the present academic teaching profession (Gideonse, 1968, p. 189).

Such a statement from a chancellor of a highly reputed college assumes additional gravity.

In Chapter One the situation in higher education was reviewed by the Director of the Division of College Programs, U. S. Office of Education, Department of Health, Education and Welfare (Bigelow, 1969). He described the crisis in education as The Fourth Revolution, following the American, French, and Russian revolutions.

R. M. Hutchins (1967) repeats the story of crisis in higher education. His tone is no less ominous than that of Bigelow and Gideonse. He proposes that the name university be replaced by the name multiversity as a more accurate description of what goes on in contemporary higher education. Hutchins speaks of a need for education to take a service role in promoting human understanding if it is not to guarantee the collapse of this civilization. And Hutchins pleads for basically different structure in which lower education will prepare people, in his words, for "the independent study to which the university should be confined."

Beittel and Burkhart (1969) provide insight as to the ends toward which such self-directed education needs to be directed. In an overview of their forthcoming book, Education, As a Unifying and Energizing Image of Man, they write:

> Education's primary function is the energizing and unifying of the image of man as a creative force in his various cultural roles (Beittel & Burkhart, 1969, p. 29).

Chapter 3

PROCEDURES

SUBJECTS OF THE STUDY

The subjects of the investigation were students of intact classes of EPY 304 of the University of Georgia. Two experimental groups and two control groups were employed, in sequential order. That is, the first experimental group of 17 subjects was matched with a control group of 20 students meeting at the same time of day. In the following quarter, a second experimental group of 23 subjects was matched with a control group of 29 subjects meeting at the same time of day. Class assignment to the experimental and control sections was random in that there was no opportunity for section selection on the basis of instructor, teaching method, or any other variables, since students did not know in advance who was teaching what section. Even the instructors were confused on this point during the registration period in both the first and second experimental-control groupings. Nevertheless, it was ascertained that the distribution of special categories of class membership such as graduate students and freshmen was not imbalanced.

The second experimental treatment was a replication of the first, with the same instructor for the second experimental group and a different instructor for the second control group.

To study the possible influence of the personality of the instructor of the experimental groups, in replication, three other instructors assisted with the treatment. The assistants filled roles of consultants, as called for in the treatment, for the purpose of meeting with students individually and in small groups.

In replication, this divided the experimental subjects into four subgroups. One subgroup was composed of students who had the researcher as instructor for individual consultation, small group meetings, and whole class meetings. The other three subgroups each had a consultant other than the instructor for the individual sessions and the small group meetings. Analysis of these subgroup results was expected to provide knowledge of the extent of influence of the personality of the instructor in the experimental treatment.

The participating consultants were doctoral students in educational psychology at the University of Georgia. Two consultants had master's degrees in counseling but little teaching experience. The other two, including the researcher, had more college-level teaching experience, but less advanced training and experience in counseling. Thus, the four participating consultants in the experimental replication were judged to offer a broad spread of personality and experience differences for comparative analysis of the data.

The first experimental-control group study had an N of 17 in the experimental group and an N of 13 subjects for whom all test data were collected in the control group (total class size of the control group was three students larger than the experimental group). The replication study had an N of 23 in the experimental group and an N of 29 in the control group.

DATA-GATHERING INSTRUMENTS

Departmental Evaluation of Achievement

Form C of the EPY 304 Departmental Evaluation of Achievement, Department of Educational Psychology, University of Georgia, was given as a pre-test measure in the initial study and in the replication. Form B of the above test was given as a post-test measure of content assimilation in the initial study. Form D of the above test was given as a post-test measure of content assimilation in the replication.

All of the above examination forms were constructed by Dr. E. Paul Torrance, Chairman, Department of Educational Psychology, University of Georgia. All of the tests systematically sampled the content areas of learning, growth and development, personality, social behavior, measurement, statistics, and research methods. Form C is composed of 78 multiple-choice items. Curry (1970) determined a reliability coefficient of .60 (Kuder-Richardson Formula 21) for Form C in an administration to the 316 students of one quarter term of Psychology 304, University of Georgia. Curry (1970) determined a reliability coefficient of .67 (KR-21) in the same manner for Form B with 335 students. Form B has 86 multiple-choice items. The researcher determined a reliability coefficient of .67 (KR-21) for Form D with the 369 students of the classes taking EPY 304 concurrently with the experimental class of the replication study. Form D has 85 multiple choice items.

T-scores employed were based on norms established by previous administration in the case of Form B and C. The previous administration utilized for the establishment of norms was the Departmental Evaluation Examination at the end of the Fall Quarter, 1969, at which time Forms A, B, and C were randomly assigned to the 312 students.

T-scores employed for Form D were based on norms established by the administration of the Department Evaluation Examination in the term of the replication of the present study, Spring Quarter, 1970. The normative sample included 254 students taking the EPY 304 Departmental Evaluation Examination at the end of the Spring Quarter, 1970. The following students were not included in the norm group: (1) Students who had been told in advance that their grade on the test would not be used in grade determination, and (2) Students of the instructor who had constructed the examination.

The Form C norm used in this study has a 35.30 mean number of correct responses, and a 6.90 standard deviation (with a standard error of 4.34). The Form B norm used in this study has a 42.93 mean number of correct responses, and a 7.98 standard deviation (with a standard error of 4.58). The Form D norm used in this study has a 42.91 mean number of correct responses and a 6.04 standard deviation (with a standard error of 4.59).

Affective Ratings of Educational Psychology

Affective ratings of educational psychology were made with a semantic differential measuring device in use by the University of Georgia, College of Education. The ten semantic differential items employed by this study were: (1) Interesting-Boring, (2) Enthusiastic-Unenthusiastic, (3) Supporting-Hostile, (4) Trustworthy-Untrustworthy, (5) Imaginative-Unimaginative, (6) Safe-Dangerous, (7) Mature-Immature, (8) Lively-Lifeless, (9) Useful-Useless, and (10) Fair-Unfair. These ten items were scored on a seven-point scale, with 1 defining positive polarity and 7 defining negative polarity.

The semantic differential technique was developed by Osgood, Suci, and Tannenbaum (1957) for the measurement of semantic connotations. Its method consists of the rating of a concept along a scale between bi-polar adjectives. Research on the semantic differential by Osgood and associates indicates high reliability, particularly with the evaluative factor adjectives used in this study. The essential valence measure of this study was like-dislike for Educational Psychology.

Osgood and Luria (1967) consider factor analysis to be the basic methodology in making decisions about the use of summed scores in the semantic differential as is done in the method in the present study. Curry (1970) conducted a factor analysis of the semantic differential instrument used in this study. Principal components analyses with unities in the diagonals of the correlational matrices, and six iteration cycles were performed in each analysis and the factors were identified for the instrument. Three latent roots greater than one were found, but a single factor accounted for .39 percent of the total variance. In the unrotated factor matrix, variables seven and ten, of originally twelve variables of the instrument, were uncorrelated with the other variables. The decision of Curry to omit variables seven (Easy-Difficult) and ten (Old-New) was followed in the present evaluation. The other ten variables were summed for a composite score for each subject with reference to scaling of positive attitude toward educational psychology. The variables were also studied separately.

The California Psychological Inventory

The California Psychological Inventory, with eighteen personality scales drawn from 480 questions, was used to measure certain hypothesized personality shift. Test-retest correlation of the scales of the CPI ranges from a low of .44 on "communality" to a high of .87 on "tolerance." Male norms are based on more than 6,000 cases; female norms are based on more than 7,000 cases (Gough, 1957).

More than a hundred studies are available with reference to the adequacy of this instrument as used for the present research. Considerable validity evidence exists from the cross-validational studies of the instrument. The CPI manual gives a brief summary of validation evidence for each scale of the inventory. For example, the first study listed for Sy (sociability) covers five high schools in which the principals were asked to nominate the "most" and "least" participant students. The mean difference of Sy scores for these different groups was 4.44 (C.R. 4.37), indicating Sy function at .01 level of significance.

Approximately 200 of the CPI items were drawn from the Minnesota Multiphasic Personality Inventory. The scales are grouped into four broad categories that seek to emphasize some of the psychometric clusterings (refer to Figure 1 in Chapter Three). The testing time is about 45 minutes. The inventory has been used with ages ranging from 12 through 70. No rigorous conditions are required for valid test results. The administration of this test to more than 50,000 subjects since its first large scale use in 1951 has yielded sufficient samples to give an idea of the trends and variations to be expected in different groups.

The particular scales of the CPI used were those of Factors II and III of a study of Parloff, Datta, Kleman, and Handlon (1968). These factors are: (II) Assertive Self-assurance, accounting for 21 percent of the total variance in both the Potential Creative Scientist and the adult sample. (III) Adaptive Autonomy, accounting for 12 percent of the total variance in the Potential Creative Scientist sample and 17 percent of the total variance in the adult sample correlation matrix.

Parloff et al. tested whether highly creative adults of various fields share differentiating personality characteristics. To this end, re-analysis was made of the extensive personality data collected over the years by the Institute for Personality Assessment and Research (IPAR) at the University of California. In addition, study was undertaken of a sample drawn from more than 5,000 successful male entrants to the 22nd and 24th Annual Science Talent Search (STS), and further selected by a score above the 80th percentile on a science aptitude examination. This procedure arrived at 1,030 eligibles, of which 938 accepted testings and were classified as more creative (266 subjects) and less creative (672 subjects).

The thoroughness of the Parloff _et al_. study is judged to afford a sound basis for the use of elevation in the sum of scores of Factors II and III as quantitative measures of elevation in personality attributes associated with high creative development. Factor II was a significant variable of high creativity at .10 level for adults and .05 level for adolescents. Factor III was significant at .01 level for both adults and adolescents, the more creative subjects showing significantly more autonomy than the less creative subjects. It should be emphasized that the adolescent subjects were those sharing very superior status in other talent measurement (the top 20% of the successful STS candidates). All of the previous selection procedures apparently missed the significant creative-ability difference differentiated by elevation on the Parloff _et al_. factors II and III of the CPI. The availability of these factors is considered to be a great advantage for the present research.

Runner Studies of Attitude Patterns Interview Form III

This instrument has 12 personality scales drawn from 118 questions (refer to Figure II). The present research employed it as a further quantitative measure of possible personality shift associated with the experimental treatment. The scales relating to Control Oriented and Freedom Oriented were employed. The Control Oriented scales are: Ru, Emphasis on Rules and Tradition; Pl, Practical Planfulness;

Pc, Passive Compliance; Hl, Hostility and Blamefulness. The Freedom Oriented scales are: Eo, Experimental Orientation; Io, Intuitive Orientation; Re, Resistance to Social Pressure; T, Pleasure in Tool Implemented Handskills. The Control Oriented and Freedom Oriented factors were used in the present research because of their theoretical and empirical association with creative development that is generally indicated by creativity research.

The principal basis for the selection of items and scales for the Interview Form III was statistical analysis of a longer (245 item) earlier form. The data for the analysis were drawn from test results of 1016 male applicants for a wide variety of jobs. The analysis included a factor analysis, item intercorrelations, and correlations between items and each of the 24 scales included in the earlier Comprehensive Form (Runner and Runner, 1965).

This inventory has been under development for 25 years. With reference to reliability of the scales, the highest average correlations between items and scale scores (alpha coefficients) are above .80. The lowest are above .50. Except for Re (Resistance to Social Pressure), which is over .50, all the scales of Freedom Oriented show alphas in the .70's. All of the Control Oriented scales also show alpha's in the .70's.

Systematic effort has been made to establish predictive validity for this instrument. The emphasis has been on construct validity, wording items so as to obtain appropriate correlations. In a recent study of the prediction of production of life insurance salesmen, each of the Runners' variables was significantly correlated with sales volume, at .01 level of significance. Ratings assigned from the Runners' by a trained interpreter were significant at .001 level (Runner and Runner, 1965).

Though the relationship to creative development has not been so thoroughly researched, empirically, the present research includes the Runners' factors in measuring for personality shift toward high-creative profile.

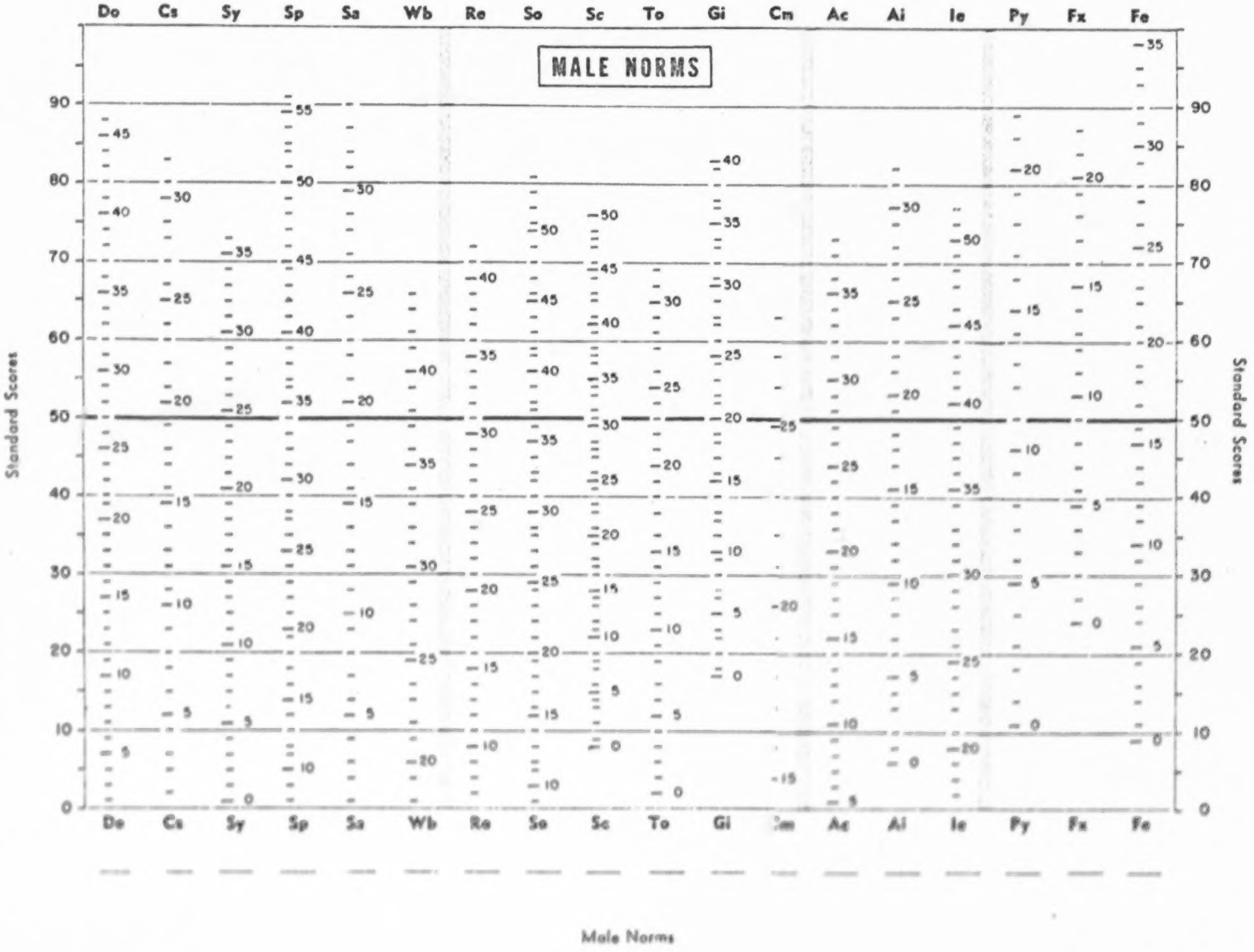
The Parloff *et al*. research offers factors more thoroughly researched and empirically verified as correlates of high creative ability. The Runners' factors, however, get at dimensions not covered by the CPI scales. The doctoral dissertations of Hauck (1968) and Myers (1968) afford further analysis of the Runners' instrument as an appropriate inventory in the study of creativity. The Runners' factors are indicated by theory and research to measure dynamics that are a part of the self-directive process through which creativity proceeds. Therefore, this instrument is used as an extension of the personality inquiry of the present study.

PROFILE SHEET FOR THE *California Psychological Inventory*: MALE

Name ______________________ Age ________ Date Tested ______________

Other Information ______________________

Notes:



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Eo: Experimental Orientation
Io: Intuitive Orientation
Ru: Emphasis on Rules and Tradition
Pl: Practical Planfulness
Pw: Desire for Power and Authority
Pc: Passive Compliance
X: Extroversiveness
Hl: Hostility and Blamefulness
Ro: Resistance to Social Pressure
Sa: Social Anxiety
T: Pleasure in Tool-Implemented Hand Skills
Pa: Performance Anxiety

Freedom Factor = F
Control Factor = C

SAMPLE PROFILE FOR
RUNNER STUDIES OF ATTITUDE PATTERNS
INTERVIEW FORM III
WITH FREEDOM AND CONTROL FACTORS INDICATED

F	C	F	C		C		C	F		F	
Eo	Ru	Io	Pl	Pw	Pc	X	Hl	Ro	Sa	T	Pa
9 8 7	10 9 8	9 8 7	9 8 7	10 9	9 8	10 9 8	9 8 7	8 7	9 8 7	5	9 8 7
6	7 6	6 5	6	8	7 6 5	7 6	6 5	6 5	6 5	4	6 5
5 4	5	4	5 4	7 6	4 3	5 4	4 3	4	4	3	4
3	4 3	3	3	5 4 3	2	3 2	2	3	3 2	2	3 2
2 1	2 1	1	2	2 1	1	1		2	1	1	1
			1					1			

FIGURE 2

EXPERIMENTAL TREATMENT

Components of STRUSD Education

Structure for Self-Directed Education (STRUSD Education) involves several components which will be discussed separately.

Structure of course. The contemporary concept of education with rigidly defined groups called classes is abandoned. Instead, a course proceeds with a variety of interpersonal relationships. (a) There are consultations on a one-to-one basis between student and fellow student, and student and instructor. (b) There are small group meetings of six or fewer students with or without the instructor. (c) There are meetings of two, three, or four small groups which are here termed class meetings. (d) There are meetings of several classes together, which are here termed departmental programs. (e) There is the possibility of scheduled sessions which participate in the larger life of the community. These are termed community sessions. Needless to say, all five of these interpersonal activity structures are in support of the individually exercised program.

Structure of academic accountability. Educators have long struggled with the job of maintaining freedom for intellectual inquiry and accountability for intellectual achievement within one framework. The grading system evolved has come under attack increasingly in recent years. Under conventional grading systems, there is a tendency for the student to focus on what the teacher is grading on rather than on what may seem to the student to be most pertinent at the time. The student is not assisted in developing his own responsibility for his education.

Student groups demand change or outright abolishment of the grading system. This may be more a reaction to the lack of support of their development than it is an answer to a problem.

The work-report of the present research system is an attempt of allowing individual freedom with concomitant responsibility and yet providing for academic accountability.

The work-report structure. The work-report structure seems to answer the major objections to conventional grading practice. Under the Treatment A structure, students do not ask the teacher what to do. They tell the teacher what they have done. This method assumes a faculty that is trying to foster self direction and still keep a high level of academic accountability.

The work-report structure may be varied according to the level and content of education. At one extreme (at lower grade levels), it may be a daily or even hourly report of the utilization of specific time periods listed. At the other extreme, it may be monthly or even annual report with little notation as to time periods involved.

In the present study, the work reports were made for two-week periods, with a ten-hour-a-week work load.

Psychodynamic structure. This aspect of the STRUSD Education borrows from Herbert Read's (1949) elegantly simple model for education, "intimacy-choice-action." In intimacy an honest encounter between an individual and his environment is a minimum demand. In choice the individual must make a decision or frame a feeling in regard to his honest encounter. This is the point at which definition of self begins. And in action the individual initiates action in support of the choice made. Through intimacy-choice-action, the definition of self is transformed into self direction.

The intimacy-choice-action model is termed dynamic in that initiated action generates change in intimacy in a recycling of intimacy-choice-action commitment with conation energy (Aveling, 1926; Lundholm, 1934; McDougall, 1932; Richardson, 1929; Warren, 1931; Wild, 1928). The result may be described as "coming alive," or in another language of modern life, "turning on" with self direction.

The employment of the psychodynamic structure may vary according to educational level and course content. Its function is to lock the self-development process to course content assimilation. In Treatment A this defines a function of tying classroom psychology to self development. Under the rationale of a self-as-instrument concept of teacher development (Combs, 1964), the student is given the responsibility of developing into the kind of person he or she wants to become. The term person, rather than teacher, is used intentionally to communicate that the first function of the course is not to transform individuals into job-specialists for the machinery of the system. Rather, the rationale holds that an individual developing himself or herself as a whole person is by this process improving his or her potential to be a superior teacher, for the self is the instrument creating the quality and quantity of teaching.

Brief Description of STRUSD Treatment A

Because the treatment is a comprehensive system of education, it is deemed essential that a detailed description of the treatment be a part of this report. Since this involves considerable writing, only a brief treatment is included here. Further details and documents are given in Appendix B. The intention is a treatment that is sufficiently definitive to permit replication by other researchers. Variables are allowed to the fullest extent that is deemed consistent with definition of the essential components of Treatment A.

Briefly, STRUSD Treatment A calls for students to study cognitive course content independently, outside of class, from a list of course objectives. This opens the class time for more than cognitive-information transfer. In a physical education course, this "more" might be learning how to ride a bicycle. In the particular area of this study, a course in educational psychology for prospective teachers, the "more" is enhancement of self direction in the educational process. So this is the focus the course takes in the student-student and teacher-student experience.

SDP is promoted through TDS developed from the research and experience from which the researcher borrows. Students meet individually with their instructor (or consultant, in replication) in consultation sessions that communicate teacher concern for the students' needs, problems, and intention. The teacher respects student requests for personal assistance in his job of self-directed education, but help is provided only when judged to be necessary. Treatment A calls for two required, one-half hour individual consultations with an additional, one-half hour individual consultation available at the option of the student. The sessions are intended to be informal visits.

Students also meet in small groups which permit personal interchange with respect to their studies and other projects of self development. In the small groups, students get the advantage of peer perspective toward themselves, their needs, problems, and intentions; they also get such instructor (or consultant) structuring as is defined by the small-group treatment to promote self-understanding, communication, and confrontation. Treatment A calls for five, two-hour small group sessions with specified small-group treatment.

The course has further meetings of the class as a whole, for administrative and self-evaluation purposes, guest interviews, and such other program as is not available outside of class and is judged by the instructor to be appropriate as course organization for promoting self direction. Lastly, special sessions of all EPY 304 classes are held for the purpose of film presentations and guest lecturers arranged by the EPY Department. In summation, what can be handled in departmental session is handled in this most efficient way. What seems to call for the smaller sessions of individual classes is handled at that level. What requires personal, small-group interchanges is dealt with there. And what is an individual concern is handled in a one-to-one relationship with the teacher.

Work reports permit evaluation of work independently conceived and undertaken. At the end of the course, the Department gives an objective examination to test the student's mastery of cognitive material called for by the departmental objectives he was furnished at the beginning of the course.

Various educational and psychological tests are administered, or at least made available to the students, during the course to assist self-understanding and self-evaluation for the self development each is pursuing.

Key documents of Treatment A are included in Appendix B.

Basic Assumptions

I. It is assumed that the Departmental Evaluation of Achievement is a valid measure of content of educational psychology assimilated during the course. This instrument has been developed over the last several years and has been tested for reliability as indicated in the description of instruments. The course program has been systematically broken down and the test has been designed to evaluate the full extent of course content indicated in the objectives of the course circulated to all instructors of the course.

II. It is assumed that the Adaptive Autonomy and Assertive Self-assurance factors that appear to predispose to creative performance in the Parloff *et al*. study (1968) will similarly predispose to creative performance in the *application of knowledge to the professional setting* (global objective II of EPY 304). Parloff *et al*. describe the creative individual as one who recognizes and identifies new relationships among phenomena and, by virtue of his respect for his own capacity, is willing to attempt new integrations.

III. It is assumed that elevation on the Freedom Oriented score and reduction on the Control Oriented score of Runners' Interview Form III will indicate a tendency toward greater effectiveness in self direction for *application of knowledge to the professional setting* (global objective II of EPY 304). Runners (1965) describe the freedom-oriented individual as having strong personal preferences and being aware of himself as an individual. Runners describe the control-oriented individual as being self-denying, hostile, and dominated by rules other than his or her own.

IV. It is assumed that to be more freedom-oriented and less control-oriented is to be more self-directed in life. Therefore, elevation of the Freedom Oriented score and reduction of the Control Oriented score of Runners' Interview Form III are regarded to be measures of shift toward more self direction.

V. It is assumed that subjects of this study responded honestly in the tests and inventories of this research since normal measures were taken to minimize motivation for dishonesty and maximize motivation for honesty.

VI. It is assumed that the students' affective evaluation of EPY 304 afforded valid measures of actual opinion.

Limitations of the study

I. This study is limited by the inherent inability to separate teaching from the teacher. To respect this limitation, the study attempted sufficiently definitive and operational description of experimental treatment and control treatment to allow replication of the educational methods defined as TDS-SDP and TDS-TDP. To research the extent of this limitation, the study divided the replication experimental-group into subgroups under different consultants for comparative evaluation.

II. Experimental and control groups were constituted on a chance basis that randomly assigned students to one or the other of the two sections that met at the same time of day. Class membership was further studied to assure that there was appropriate matching of special categories such as graduate students, freshmen, and the like. However, there was no control of the variable of physical environment in which the classes were held, though this variable was also studied to assure what seemed to be relatively similar environments.

III. Generalizations made apply only to the population investigated in this study.

IV. The control groups were not monitored by the researcher to determine the extent of adherence to the TDS-TDP treatment. However, the control group instructors have a background in research methodology and were thoroughly briefed as to what the research expected from the control treatments. In addition, the experimenter continued to keep in communication during the study.

V. The influence of demand characteristics in this experimental treatment did not seem to pose the limitations described by Orne (1962) since the demand of the experimenter was precisely the TDS which was intended to have an effect upon the subjects. Likewise, the experimenter modeling effects upon subjects' responses and teacher bias and/or expectancy effect (Rosenthal & Jacobson, 1966) would not seem to pertain since the TDS attempts to test this very modeling effect as put to the special end of promoting SDP.

Chapter 4

RESULTS AND DISCUSSION

INTRODUCTION

Psychological and biological theory and research have indicated a critical deficiency in human development. Educational theory and research have suggested the synthesis of STRUSD Education as an approach to the problem. In the present research, an empirical and case history program of evaluation was established to test the effects of an experiment in STRUSD Education. The research was designed to test whether structure for self-directed education could make for affective gains while meeting the cognitive education norms of equivalent, conventional classes. Experimental and control treatments were run and evaluated, and further comparative data of equivalent courses were analyzed. The study was then replicated.

In the report of results, the initial experimental group is variously termed STRUSD Treatment A_1, $STRUSD_1$, SDP_1 and Group 1. The replication experimental group is variously termed STRUSD $Treatment_2$, $STRUSD_2$, SDP_2 and $Group_2$. The initial control group is variously termed $Conventional_1$, $Control_1$, TDP_1, and Group 3. The replication control group is variously termed Conventional_2, Control_2, TDP_2, and Group 4.

The results of the experiment are first reported and discussed under the following hypotheses:

HYPOTHESIS I

I. _Teacher-Directed Structure for Student-Directed Process_ students will measure significantly higher than _Teacher-Directed Structure for Teacher-Directed Process_ students in the development of specific positive attitudes toward the field of educational psychology, as measured by post-course affective ratings of educational psychology.

In the initial study, there was no significant difference between any of the semantic differential subscores of the test score (Table I). In the replication, students of the control course rated significantly higher in the subscores _supporting_, _safe_, and _fair_ ($p < .05$) under _t_ test for a difference between the experimental and control $\overline{x}$ subscores. Conversely, STRUSD_2 students measured higher in the subscore _imaginative_ ($p < .05$). But there were no significant differences in the total scores with which the hypothesis was tested. Table I carries the above described affective rating results for the initial study and the replication study. In both the initial study and the replication study, Hypothesis I was rejected.

TABLE I

AFFECTIVE RATING OF THE FIELD OF EDUCATIONAL PSYCHOLOGY: COMPARISON OF SEMANTIC-DIFFERENTIAL SCORES BETWEEN STRUSD TREATMENT A STUDENTS AND CONVENTIONAL (CONTROL) STUDENTS

Positive Term of the Semantic Differential	df	$\overline{X}$	s	$\overline{X}$	s	t	p
Initial Study		$STRUSD_1$		$Control_1$			
Interesting	28	2.71*	1.26	2.69	1.32	.029	ns
Enthusiastic	28	3.00	1.41	2.77	1.64	.413	ns
Supporting	13	2.71	1.05	3.07	1.61	-.724	ns
Trustworthy	28	2.52	1.07	3.15	1.21	-1.496	ns
Imaginative	28	2.29	1.21	2.92	1.38	-1.325	ns
Safe	28	2.59	1.37	2.69	.95	-.234	ns
Mature	28	2.76	1.44	3.00	1.47	-.440	ns
Lively	13	2.52	1.18	2.92	1.93	-.647	ns
Useful	28	2.35	1.69	2.47	1.39	-.188	ns
Fair	28	2.64	1.37	2.77	1.36	-.243	ns
TOTAL	28	26.29	10.31	28.46	10.58	-.564	ns
Replication Study		$STRUSD_2$		$Control_2$			
Interesting	46	2.30	1.58	2.60	1.22	-.720	ns
Enthusiastic	46	3.04	1.82	2.96	1.31	.184	ns
Supporting	46	3.39	1.44	2.68	1.11	1.929	.05
Trustworthy	46	3.04	1.55	3.12	1.64	-.166	ns
Imaginative	46	2.30	1.40	3.04	1.43	-1.802	.05
Safe	23	3.78	2.00	2.64	1.29	2.332	.05
Mature	46	2.17	1.27	2.40	1.22	-.629	ns
Lively	46	2.70	1.52	3.32	1.57	-1.395	ns
Useful	46	1.83	1.19	2.20	1.15	-1.103	ns
Fair	46	2.87	1.66	2.00	1.12	2.145	.05
TOTAL	46	27.57	11.18	27.36	9.33	.069	ns

*Positive attitude is indicated by a low score.

The design which divided the replication study, experimental group into four subgroups for testing of the instructor variable was now utilized. The subgroup scores on the affective rating instrument were t tested for significant differences between the scores of the four subgroups that were each under a different consultant. No significant difference was found between any of the subgroups under different consultants in the test of Hypothesis I. All subgroup scores showed nonsignificant change of attitude toward the field of educational psychology. The hypothesis was rejected with each subgroup.

The above-reported method of evaluation with post-course scores rather than with covariance or gains scores was chosen mainly because there was no scientific basis for scaling the effect of pre-course attitudes upon the post-course attitudes.

The rejection of Hypothesis I is interpreted in relation to student evaluations of the course. Random sample evaluations (Appendix F) make repeated reference to STRUSD Education as an unusually significant experience. The semantic differential ratings at first seem to contradict the written student evaluations. However, further study of the findings indicates that the nonsignificance between groups in the affective ratings may be the result of a confounding of negative and positive feelings rather than the absence of strong feelings about STRUSD Education.

This interpretation considers the fact that, in the replication study, supporting, safe and fair were rated significantly less positive by the $STRUSD_2$ group. Though these findings did not appear at significant levels in the initial study, they fit with the further rating of STRUSD Education as more imaginative. The perspective framed indicates that the students of the experimental group felt significantly negative about some aspects of STRUSD Education's relation to their personal selves in the "imaginative" (positive) course structure. The nonsignificance ($p < .45$) of the summed scores verifies that there were balancing positive feelings for the negative feelings.

A consistency with other research is found in the indications of negative feeling toward some aspects of STRUSD Education. Gruber and Weitman (1962) found resistance to self-directed structure, and termed this resistance "emotional lag." They found that this lag demonstrated in an immediate negative reaction toward a self-directed course in which a student was a participant, even though the student showed a simultaneous greater support for the life-style of self direction.

The student morale problem was again reported by Eglash (1954), Neel (1959), and Beach (1961). In the present experiment, the affective rating instrument does not indicate a similar morale problem, but it does indicate the dynamics of the problem. It is interpreted that in STRUSD

Education the dynamics were sufficiently counter-balanced to bring the mean up to nonsignificance, but the positive dynamics were not sufficiently strong to lift the mean to positive significance.

The interpretation of results is, however, limited as follows: (1) The interpretation assumes a halo effect that ties student-attitude effect of a course under study to the larger field of the discipline involved. This assumption is speculative. (2) The mean scores of the semantic differential instrument used were as close as 15 points from the positive end of the scale. In this circumstance, the standard deviation ran as high as 13 points. In other words, the possibility of positive scores more than one standard deviation above the mean was severely limited; negative scores were not similarly limited. The extent to which the test limitations influenced the results is not known.

It is worth noting that the identification of significant variables, supporting, safe and fair, occurred in the class where the researcher would most expect to find them. The instructor of this control class was a protestant minister in addition to being an educator. The researcher's subjective evaluation of this instructor is consistent with these test results.

HYPOTHESIS II

II. Teacher-Directed Structure for Student-Directed Process students will measure significantly higher than Teacher-Directed Structure for Teacher-Directed Process students on (A) pre- to post-course elevation on (1) the Assertive Self-assurance and (2) the Adaptive Autonomy factors of Parloff *et al*. CPI analysis, and (B) pre- to post-course elevation on (1) the Freedom Orientation score and reduction on (2) the Control Orientation score of the Runners' Interview Form III.

This hypothesis has subdivisions (A) and (B) with two tests in each subdivision in order to give adequate scope to the affective test program and to cross validate the findings.

The test of (A-1) is first reported. The initial study data of experimental (N-17) and control (N-13) groups and the replication study data of experimental (N-23) and control (N-29) groups were put to an analysis of covariance. The pretest was used as the covariate so as to adjust the post-test scores for differences prior to treatment and to test for differences in adjusted post-test performance. For each scale evaluated, the F ratio (Table II) indicates the extent of the difference between adjusted mean scores. The Duncan's Multiple Range Test was used to pinpoint differences between the groups.

To facilitate comparison, the groups were numbered as follows: $SDP_1=1$, $SDP_2=2$, $TDP_1=3$, $TDP_2=4$. The initial study paired groups 1 and 3. The replication study paired groups 2 and 4. In the above design, the cleanest support of an hypothesis under test was considered to be a significant F ratio with groups 1 and 2 homogeneous but significantly different from groups 3 and 4.

In the second phase of the test program, $STRUSD_2$ was again analyzed as four subgroups so as to learn of the possible influence of an instructor variable. In this program, the cleanest test results were considered to be a non-significant F ratio (defining homogeneity of all four subgroups).

Tables II and III give the results of the test of Assertive Self-assurance and the 5 CPI scales that make up this _Parloff_ _Factor_ _II_. Table II gives the results for the primary groups and Table III gives the results for the subgroups of $STRUSD_2$.

In Table II the primary groups are indicated to be significantly different ($p < .001$) and the Duncan's Multiple Range Test pinpoints that groups 1 and 2 are homogeneous but different from 3 and 4 in the variable under test. Examination of the means indicates that the significant difference is a greater elevation in Assertive Self-assurance on post-course adjusted scores. It is evident that in the (A-1) test, Hypothesis II was supported in both the initial study and in

TABLE II

ANALYSIS OF COVARIANCE USING PRETEST AS THE COVARIATE TO TEST DIFFERENCES IN POSTTEST PERFORMANCE AND DUNCAN'S MULTIPLE RANGE TEST TO PINPOINT SPECIFIC DIFFERENCES AMONG GROUPS FOR ASSERTIVE SELF-ASSURANCE AND ITS COMPONENT CPI SCORES*

		(1) STRUSD$_1$ N-17	(2) STRUSD$_2$ N-23	(3) Control$_1$ N-13	(4) Control$_2$ N-29	F Ratio
ASSERTIVE SELF-ASSURANCE	Means	14.839	14.437	13.501	12.573	12.986 ($p < .001$)
	H.W.**	2	1	itself only	itself only	
ASA-1 Social Presence	Means	43.004	41.509	37.872	34.515	16.709 ($p < .001$)
	H.W.	2	1	itself only	itself only	
ASA-2 Capacity for Status	Means	22.696	22.096	20.018	18.749	8.431 ($p < .001$)
	H.W.	2	1	4	3	
ASA-3 Sociability	Means	28.166	26.916	25.474	23.838	6.621 ($p < .001$)
	H.W.	2	1,3	2,4	3	
ASA-4 Dominance	Means	29.659	30.839	27.998	26.175	4.599 ($p < .01$)
	H.W.	2,3	1,3	1,2,4	3	
ASA-5 Self Acceptance	Means	24.823	23.608	24.480	21.911	4.179 ($p < .01$)
	H.W.	2,3	1,3	1,2	itself only	

*Parloff _et al_, 1968.

**Homogeneous With (according to Duncan's Multiple Range Test, $p < .05$)

TABLE III

ANALYSIS OF COVARIANCE USING PRETEST AS THE COVARIATE TO TEST DIFFERENCES IN POSTTEST PERFORMANCE AND DUNCAN'S MULTIPLE RANGE TEST TO PINPOINT SPECIFIC DIFFERENCES AMONG GROUPS FOR ASSERTIVE SELF-ASSURANCE AND ITS COMPONENT CPI SCORES*

		(N-5) (1) Subgroup$_1$	(N-6) (2) Subgroup$_2$	(N-7) (3) Subgroup$_3$	(N-5) (4) Subgroup$_4$	F Ratio
ASSERTIVE SELF-ASSURANCE	Means	14.592	15.278	13.983	14.598	.975 no significance
	H.W.**	2,3,4	1,3,4	1,2,4	1,2,3	
ASA-1 Self Acceptance	Means	24.409	24.257	22.489	26.798	4.472 ($p < .05$)
	H.W.	2,3,4	1,3,4	1,2	1,2	
ASA-2 Capacity for Status	Means	21.468	24.215	20.718	22.269	1.606 no significance
	H.W.	2,3,4	1,3,4	1,2,4	1,2,3	
ASA-3 Dominance	Means	31.763	32.322	28.697	30.274	.881 no significance
	H.W.	2,3,4	1,3,4	1,2,4	1,2,3	
ASA-4 Social Presence	Means	41.212	43.385	40.522	41.195	.486 no significance
	H.W.	2,3,4	1,3,4	1,2,4	1,2,3	
ASA-5 Sociability	Means	27.337	27.252	27.220	27.053	.005 no significance
	H.W.	2,3,4	1,3,4	1,2,4	1,2,3	

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*Parloff *et al.*, 1968.

**Homogeneous With (according to Duncan's Multiple Range Test, $p < .05$)

the replication.

The second phase of the test program evaluating the subgroup scores is carried by Table III. It may seem that there is no significant differences between subgroups in Assertive Self-assurance. The effects are thus attributed to the experimental treatment rather than to instructor differences.

Table II also carries the five component-scores of the Assertive Self-assurance factor. These results indicate that the far greatest relative gain of STRUSD Education was elevation on the component scale Social Presence. The CPI manual (Gough, 1957, p. 12) describes persons high in Social Presence as being:

> Clever, enthusiastic, imaginative, quick, informal, spontaneous, and talkative; as being active and vigorous; and as having an expressive ebullient nature.

The enhancement on this scale was significant at the .001 level.

The component scores Capacity for Status and Sociability also were significantly enhanced at the .001 level of confidence. Dominance and Self Acceptance were significantly enhanced at the .01 level of confidence.

Analysis of the subgroup component scores carried in Table III reveals that only Self Acceptance was significantly more enhanced in one subgroup than in another ($p < .01$). Subgroup 4, conducted by the researcher, is found to be significantly higher in Self Acceptance than subgroup 3, conducted by a consultant.

Students of subgroup 3 had mentioned in class that they felt "threatened" in speaking up in class. In his written evaluation, one student of this group mentioned that he had not realized how threatening the class was until it came up in his small group meeting. In his Small Group History, the consultant of subgroup 3 reports (Appendix B-6, Small Group History III, Session Four):

> They felt that although the instructor told them to speak freely, they were looked upon negatively by the instructor and other members of the class when they did so.

When this negative attitude became known to the researcher, he arranged for a poll in which a student committee would keep the results until the class was over. Thus it was eventually learned who had felt threatened. Ten students had signed, "yes," they felt threatened; ten had signed, "no;" and two had signed, "sometimes." Five of the "yes" students were from subgroup 3, which had a total of seven members. There were no "threatened" students in the high Self Acceptance subgroup 4, which had a total of five members.

The indications are that subgroup 3 served as a subculture in which negative feelings toward the larger course experience were surfaced and strengthened as a part of the dynamics of the small group experience. One would need to study the entire history of these different small groups to arrive at an hypothesis as to why they developed significantly different in the dimension of Self Acceptance. It may be that the negative attitude handicapped development. Other possible causes are the consultant personality variable and a possible departure from the prescribed small group treatment.

This was the only Parloff-factor component scale in which there was a significant difference between any subgroups. This difference was sufficiently absorbed in the summing of component scores so as to yield nonsignificance in the test of the hypothesis. Since there was no significant difference between any subgroup under the different consultants of $STRUSD_2$, the significant effect was attributed to the experimental treatment. The lack of homogeneity of $Control_1$ and $Control_2$ left the instructor-variable question open for the control groups on this factor. Since $STRUSD_2$ was homogeneous with $STRUSD_1$ (in which the instructor of $STRUSD_2$ was the instructor and consultant for all four subgroups), it is concluded that with both experimental groups the significant difference from the control groups resulted from the treatment variable rather than the personality of the instructor.

The test of Hypothesis II (A-2) has data reported in Tables IV and V. It may be observed that analysis of covariance indicates a significant difference ($p < .001$)

TABLE IV

ANALYSIS OF COVARIANCE USING PRETEST AS THE COVARIATE TO TEST DIFFERENCES IN POSTTEST PERFORMANCE AND DUNCAN'S MULTIPLE RANGE TEST TO PINPOINT SPECIFIC DIFFERENCES AMONG GROUPS FOR ADAPTIVE AUTONOMY AND ITS COMPONENT CPI SCORES*

		(1) STRUSD_1 (N-17)	(2) STRUSD_2 (N-23)	(3) Control_1 (N-13)	(4) Control_2 (N-29)	F Ratio
ADAPTIVE AUTONOMY	Means	47.557	45.566	43.164	38.575	6.888 ($p < .001$)
	H.W.**	2,3	1,3	1,2	itself only	
AA-1 Flexibility	Means	15.019	12.035	11.412	9.540	7.052 ($p < .001$)
	H.W.	itself only	3	2,4	3	
AA-2 Psychological Mindedness	Means	12.548	12.536	11.236	9.851	6.366 ($p < .001$)
	H.W.	2,3	1,3	1,2,4	3	
AA-3 Achievement via Independence	Means	21.005	20.791	20.222	18.833	2.388 no significance
	H.W.	2,3	1,3	1,2,4	3	

*Parloff *et al*., 1968

**Homogeneous With (according to Duncan's Multiple Range Test, $p < .05$)

TABLE V

ANALYSIS OF COVARIANCE USING PRETEST AS THE COVARIATE TO TEST DIFFERENCES IN POSTTEST PERFORMANCE AND DUNCAN'S MULTIPLE RANGE TEST TO PINPOINT SPECIFIC DIFFERENCES AMONG GROUPS FOR ADAPTIVE AUTONOMY AND ITS COMPONENT CPI SCORES*

		(1) Subgroup$_1$ (N-5)	(2) Subgroup$_2$ (N-6)	(3) Subgroup$_3$ (N-7)	(4) Subgroup$_4$ (N-5)	F Ratio
ADAPTIVE AUTONOMY	Means	43.403	47.391	41.880	44.496	.591 no significance
	H.W.**	2,3,4	1,3,4	1,2,4	1,2,3	
AA-1 Achievement via Independence	Means	19.606	22.274	18.646	19.362	2.471 no significance
	H.W.	2,3,4	1,4	1,4	1,2,3	
AA-2 Psychological Mindedness	Means	11.819	13.793	11.505	13.323	1.008 no significance
	H.W.	2,3,4	1,3,4	1,2,4	1,2,3	
AA-3 Flexibility	Means	11.541	11.482	11.838	11.907	.011 no significance
	H.W.	2,3,4	1,3,4	1,2,4	1,2,3	

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*Parloff _et al_., 1968.

**Homogeneous With (according to Duncan's Multiple Range Test, $p < .05$)

between the primary groups in the extent of enhancement on this dimension, Adaptive Autonomy (Parloff Factor III). The results carried in the cell below each mean tell that the Duncan's Multiple Range Test established that $STRUSD_1$, $STRUSD_2$, and $Control_1$ were homogeneous with one another and different from $Control_2$.

Further tests investigated more closely the basis of the homogeneity of $Control_1$ with $STRUSD_1$, the groups paired in the initial study. It was determined that $Control_1$ had a pre- to post-test gain of 2.00 with a standard deviation of 7.68, and $STRUSD_1$ had a pre- to post-test gain of 4.88 with a standard deviation of 6.42. t tests for related measures of pre- to post-test scores indicated a significant enhancement of Adaptive Autonomy ($p < .01$) in $STRUSD_1$ but a nonsignificant enhancement in $Control_1$. The homogeneity of these two groups was thus indicated to result from gains that were significant for the experimental group but not for its corresponding control group.

The $Control_1$ (TDS-TDP) treatment is available in Appendix B-2 for study of how the enhancement in Adaptive Autonomy may have been achieved in the Teacher-Directed Process even though it was nonsignificant. The high elevation of the $Control_1$ instructor in Adaptive Autonomy (he tested at the 95th percentile) may have influenced his program in a way that promoted similar student behavior.

From the listed data of covariance analysis, Duncan's

Multiple Range Test, and t tests, it is indicated that Hypothesis II (A-2) was supported by both the initial and the replication study.

The second phase of the evaluation, studying a possible instructor variable, has data reported in Table V. It may be seen that there are no significant differences between subgroups in the Adaptive Autonomy scores with which the hypothesis was tested and supported. Neither is there a significant difference between the subgroup scores on the three component scales of the factor under test. Thus the data indicates that there was no instructor variable indicated in the consultant program of $STRUSD_2$.

In regard to component scores, Table IV shows that of the three component scores of Adaptive Autonomy, the most significant enhancement took place in Flexibility ($p < .001$), but Psychological Mindedness was also significantly enhanced at the .001 level of confidence.

The third component score, Achievement via Independence, was nonsignificant for both the initial study and the replication. Since STRUSD Education is directly structured for Achievement via Independence, this finding came as a perplexing surprise.

A closer look at the CPI description of this dimension is warranted since it is the only scale (of the eight CPI scales employed) that is not significantly enhanced by STRUSD Education. The CPI manual (Gough, 1957, p. 13) describes persons high in Achievement via Independence as being,

> Mature, forceful, strong, dominant, demanding, and foresighted; as being independent and self-reliant; and as having superior intellectual ability and judgment (Gough, 1957, p. 13).

The Achievement via Independence scale attempts to "identify those factors of interest and motivation which facilitate achievement in any setting where autonomy and independence are positive behaviors" (Gough, 1957, p. 13). Persons scoring low on this scale are described as,

> Inhibited, anxious, cautious, dissatisfied, dull and wary; as being submissive and compliant before authority; and as lacking in self-insight and self-understanding (Gough, 1957, p. 13).

Further research of the dynamics of the CPI Achievement via Independence scale may be meaningful for STRUSD Education.

However, Achievement via Independence was only one component of the Adaptive Autonomy factor for which Parloff et al. (1968, p. 539) describe high scorers as characterized by "individuality, interpersonal perspicacity, and high motivation to work independently." The composite Adaptive Autonomy factor was significantly enhanced, as reported, with a level of confidence of .01 for the initial study and .001 for the replication study. The data show that Hypothesis II (A-2) is thus supported.

The test of Hypothesis II (B-1) has data reported in Tables VI and VII. Table VI gives the results for the primary groups and Table VII gives the results for the subgroups of $STRUSD_2$. (B-1) tests enhancement in Freedom Orientation, which is a five scale factor of Runners' Interview Form III. Data of the component scales of the factor are not reported. It is the total score that is under test. The component scales of Freedom Orientation are Experimental Orientation (EO), Intuitive Orientation (IO), Resistance to Social Pressure (Re), and Pleasure in Tool-Implemented Hand Skills (T).

As may be seen on Table VI, the primary groups are indicated to be significantly different ($p < .01$) and the Duncan's Multiple Range Test pinpoints that the difference is between the homogeneous groups 1 and 2 and the homogeneous groups 3 and 4. The data indicate that the experimentals were significantly different from the controls in both the initial study and in the replication. Examination of mean scores of Table VI indicates that the significant difference was a greater enhancement of Freedom Orientation in STRUSD Education groups. It is evident that Hypothesis II (B-1) was supported.

The second phase of the test program, studying the instructor variable, has subgroup data reported in Table VII. The data indicate no significant difference between subgroups under different consultants. Table VI further shows no significant difference between the mean scores of $Control_1$ and $Control_2$ under different instructors. It is

TABLE VI

ANALYSIS OF COVARIANCE USING PRETEST AS THE COVARIATE TO TEST DIFFERENCES IN POSTTEST PERFORMANCE AND DUNCAN'S MULTIPLE RANGE TEST TO PINPOINT SPECIFIC DIFFERENCES AMONG GROUPS FOR FREEDOM ORIENTATION (FO) AND CONTROL ORIENTATION (CO) WITH ITS COMPONENT SCORES*

		(1) STRUSD$_1$ (N-17)	(2) STRUSD$_2$ (N-23)	(3) Control$_1$ (N-13)	(4) Control$_2$ (N-29)	F Ratio
FREEDOM ORIENTATION	Means	24.868	24.283	20.760	22.194	5.244 ($p < .01$)
	H.W.**	2	1	4	3	
CONTROL ORIENTATION	Means	9.785	10.521	16.071	16.869	11.805 ($p < .001$)
	H.W.	2	1	4	3	
CO-1 Passive Compliance	Means	2.951	2.713	4.256	5.124	9.089 ($p < .001$)
	H.W.	2	1	4	3	
CO-2 Practical Planfulness	Means	1.607	2.058	3.626	3.728	4.871 ($p < .01$)
	H.W.	2	1	4	3	
CO-3 Hostility	Means	2.197	3.562	4.499	4.489	4.665 ($p < .01$)
	H.W.	itself only	3,4	2,4	2,3	
CO-4 Emphasis on Rules and Tradition	Means	2.501	2.618	4.273	3.789	4.498 ($p < .01$)
	H.W.	2	1	4	3	

*Runner and Runner, 1965

**Homogeneous With (according to Duncan's Multiple Range Test, $p < .05$)

TABLE VII

ANALYSIS OF COVARIANCE USING PRETEST AS THE COVARIATE TO TEST DIFFERENCES IN POSTTEST PERFORMANCE AND DUNCAN'S MULTIPLE RANGE TEST TO PINPOINT SPECIFIC DIFFERENCES AMONG GROUPS FOR FREEDOM ORIENTATION (FO) AND CONTROL ORIENTATION (CO) WITH ITS COMPONENT SCORES*

		(1)Subgroup$_1$ (N-5)	(2)Subgroup$_2$ (N-6)	(3)Subgroup$_3$ (N-7)	(4)Subgroup$_4$ (N-5)	F Ratio
FREEDOM ORIENTATION	Means	25.795	23.740	23.489	24.233	.461 no significance
	H.W.**	2,3,4	1,3,4	1,2,4	1,2,3	
CONTROL ORIENTATION	Means	10.796	6.267	12.233	12.557	1.524 no significance
	H.W.	2,3,4	1,3,4	1,2,4	1,2,3	
CO-1 Hostility	Means	2.782	2.036	4.069	4.678	1.216 no significance
	H.W.	2,3,4	1,3,4	1,2,4	1,2,3	
CO-2 Emphasis on Rules and Tradition	Means	3.233	1.469	2.407	2.233	1.171 no significance
	H.W.	2,3,4	1,3,4	1,2,4	1,2,3	
CO-3 Practical Planfulness	Means	1.856	1.328	2.496	2.656	.483 no significance
	H.W.	2,3,4	1,3,4	1,2,4	1,2,3	
CO-4 Passive Compliance	Means	3.205	2.732	3.060	2.633	.083 no significance
	H.W.	2,3,4	1,3,4	1,2,4	1,2,3	

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*Runner & Runner, 1965.

**Homogeneous With (according to Duncan's Multiple Range Test, $p < .05$)

concluded that the reduction in Control Orientation is a treatment effect of STRUSD Education rather than a variable associated with different instructor personalities.

As above reported, Hypothesis II was tested with four measures which, in part, each increased the scope of the evaluation of STRUSD Education and, in part, each cross validated the findings of one another to increase the power of the study. All four tests supported the Hypothesis.

HYPOTHESIS III

III. Teacher-Directed Structure for Student-Directed Process students will measure as high as Teacher-Directed Structure for Teacher-Directed Process students on the Departmental Evaluation of Achievement measuring mastery of the body of factual information of Educational Psychology 304.

Data of the test of this hypothesis appear in Table VIII. The test was conducted with the same design that was employed for the test of Hypothesis II. However, in this test, it was only necessary for the experimentals to score as high as the controls.

After equating the groups before treatment through covariance analysis of pre-test to post-test scores, comparison of groups yielded an F ratio defining a significant difference between groups ($p < .05$). The Duncan's Multiple Range Test located the difference, indicating that $STRUSD_1$

$STRUSD_2$, and $Control_1$ were homogeneous but different from $Control_2$. The adjusted mean scores of Table VIII indicate that the significant difference is in the elevation of the homogeneous groups above $Control_2$. The adjusted mean scores further indicate that $STRUSD_1$ and $STRUSD_2$ each measured higher than the control group with which it was paired. In addition, in the replication study the control group has scores significantly lower ($p < .05$) than the experimentals. This data tells that Hypothesis III was supported.

In the second phase of the evaluation, testing instructor variables, $STRUSD_2$ subgroups under different consultants were again studied through covariance analysis and the Duncan's Multiple Range test. Table IX carries data of this test. The four subgroups are indicated to be homogeneous. No instructor variable is indicated within $STRUSD_2$.

The significant difference between $Control_1$ and $Control_2$ shows that more than the experimental treatment is needed for explanation of difference in student performance in the Departmental Evaluation of Achievement. The present intention is to compare STRUSD Education to conventional education taken as a classification within which there are many variables.

Support of the hypothesis framed was possible with differences between control groups, as long as the differences were not so great as to establish homogeneity of control groups with the experimental groups to the point of

TABLE VIII

ANALYSIS OF COVARIANCE USING PRETEST AS THE COVARIATE TO TEST DIFFERENCES IN POSTTEST PERFORMANCE AND DUNCAN'S MULTIPLE RANGE TEST TO PINPOINT SPECIFIC DIFFERENCES AMONG GROUPS FOR THE DEPARTMENTAL EVALUATION OF ACHIEVEMENT

	Means	Homogeneous With*
(1) STRUSD_1	52.233	2,3
(2) STRUSD_2	50.168	1,3
(3) Control_1	51.003	1,2
(4) Control_2	45.485	itself only

Class F: 3.406 ($p < .05$)

*According to Duncan's Multiple Range Test, $p < .05$

TABLE IX

ANALYSIS OF COVARIANCE USING PRETEST AS THE COVARIATE TO TEST DIFFERENCES IN POSTTEST PERFORMANCE AND DUNCAN'S MULTIPLE RANGE TEST TO PINPOINT SPECIFIC DIFFERENCES AMONG GROUPS FOR THE DEPARTMENTAL EVALUATION OF ACHIEVEMENT

	Means	Homogeneous With*
(1) Subgroup_1	49.158	2,3,4
(2) Subgroup_2	49.650	1,3,4
(3) Subgroup_3	49.758	1,2,4
(4) Subgroup_4	54.200	1,2,3

Class F: .706, no significance

*According to Duncan's Multiple Range Test, $p < .05$

rejecting the hypothesis. There was no program for empirically observing the differences between control group treatments, therefore discussion of this subject is kept to a minimum.

The instructor-variable question which seemed to demand an answer was whether the experimental treatment was sufficiently divorced from the instructor conducting the experiment to be considered a structure of education rather than a personal way of relating to people. It was this question that the subgroup design sought to answer by substituting other instructors for the personal relationship aspect of STRUSD Education. As reported, there was no instructor variable, in this sense, in this last test of that possibility nor in any previous tests. Since the following hypothesis is but a further validation of the achievement test of Hypothesis III, the Hypothesis III subgroup data pertain to it.

HYPOTHESIS IV

IV. Teacher-Directed Structure for Student-Directed Process students will measure as high as the mean of the other classes of Educational Psychology 304 (EPY 304) concurrently taught and equivalently evaluated on the Departmental Evaluation of Achievement measuring mastery of the body of factual information of EPY 304.

TABLE X

DEPARTMENTAL EVALUATION OF ACHIEVEMENT** SCORES OF COURSES OF EDUCATIONAL PSYCHOLOGY CONCURRENTLY TAUGHT DURING THE INITIAL EXPERIMENT IN STRUSD EDUCATION

Class	N	Raw Score Mean	Standard Deviation
One	38	40.79	8.42
Two	39	46.41	8.38
Three	41	43.61	6.72
Four	30	40.97	6.91
Five	53	41.62	7.92
Six	40	44.80	5.83
Seven	41	43.56	7.87
Eight	33	39.79	9.51
Nine	20	45.45	8.48
TOTAL	335	42.93	7.98
$STRUSD_1$	17	46.88*	6.53

*($p < .05$)

**Form B; 86 test items; reliability coefficient 0.67(KR-21); standard error of estimate, 4.58.

The report of the test of this hypothesis is straight-forward. Table X carries the mean scores of the nine courses of EPY 304 concurrently taught in the initial study. No pretest analysis was conducted for this hypothesis. Since Hypothesis III was tested with pre- to post-covariance analysis, the testing of Hypothesis IV on the basis of the actual Departmental Evaluation scores was considered to be an appropriate alternate procedure.

Table X indicates that the $STRUSD_1$ group received a mean score of 46.88 with a 6.53 standard deviation. It may be seen that the mean of the other classes was 42.93 with a standard deviation of 7.98. $\underline{t}$ test indicated that $STRUSD_1$ scored significantly higher ($p < .05$). Since the hypothesis only called for the experimentals to score as high as the mean of the other classes, the hypothesis was supported by the initial study.

The replication study did not break the scores of other classes into separate groups. The N of the other classes concurrently taught and equivalently evaluated was 231. The unadjusted mean score was 42.93, with a standard deviation of 6.15. The N of $STRUSD_2$ was 23, the unadjusted mean score was 43.30, and the standard deviation was 4.41. The $STRUSD_2$ group scored higher than the mean of other classes but did not score significantly higher. Since the hypothesis only called for the experimentals to score as high as the mean of the other classes, the hypothesis was supported by the replication study, also.

SUMMARY OF RESULTS AND DISCUSSION

STRUSD Education students did not show a significant shift to a more positive attitude toward the field of educational psychology. Thus Hypothesis I was rejected.

All other hypotheses of the experiment were supported. The results indicated that a Teacher-Directed Structure for Self-Directed Process of Education may result in cognitive achievement equivalent to that of conventional classes if not significantly superior to other classes. More importantly, the results indicated that STRUSD Education, while advancing cognitive education, may achieve concurrent affective gains of self development that other research has associated with more effective self direction and greater creative ability. These were the critical needs indicated by the review of life-science research.

Although no questions remain open relative to the support of the hypotheses, the question raised by the non-significance of the Achievement via Independence component scale remains unanswered. It is considered to be a fitting post-note to this successful experiment. For the unanswered question serves to remind that not much is known at this point about the dynamics and possibilities of a STRUSD Education approach to the solution of the crisis in modern man's development.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A self-help movement has begun to generate in American society, yet the literature offers little scientific information as to the development and achievement effects of structure for self-directed education. To build knowledge upon a sound base, life-science literature of the post-Einsteinian era was here reviewed to build a theory of education upon the most advanced knowledge of the needs and potentials of self development.

The life-science review afforded new knowledge with regard to man's central nervous system. It was found that man has difficulty in integrating and organizing his phenomenal and conceptual worlds into behavior of growth as required for successful evolution. This difficulty is thought to relate to the fact that man has essentially three brains which are at different stages of evolution and thus make for difficulty of integrated behavior between feeling and thought worlds. This problem manifests itself in destructive behavior which threatens to destroy the species.

Required change for survival of the species associates with discovery of means of assisting human beings to become growth integrated. Considering man's history, a breakthrough to a new perspective seems to be essential. A new view swing took place with a cataclysmic jolt with Einstein's theory of relativity. This is because matter in the solid sense of absolute reality "out there" was dissolved (by $E=mc^2$) into sensory phenomena registering relative displays of energy. Man was drawn back to his subjective world as the source of his perspective.

Further appreciation of the primacy of subjectivity came with the Heisenberg (1958) relation observed in microphysics. From this observation the generality developed that in science of the post-Einsteinian era the object of research is no longer nature itself but man's investigation of nature. At the climax of research man is confronting himself alone.

These changes of scientific viewpoint come at a time when existential and phenomenological philosophy and psychology are advancing corresponding viewpoints. This increases the impact of the shift to the new way of regarding the human condition. In the new view, nothing is as certain as before. Each man is left to his own self as the source from which his direction must take form.

Meanwhile, biology has made outstanding advance in the understanding of genetic coding and programing. The wonders of steady-state homeostasis have been multiplied by the discoveries of intricate cell cooperation for developmental homeostasis. The new understanding structures holistic models in which individual cell behavior can only be understood through analysis of the entire community of cells in which a cell is a cooperative participant. This thinking moves alert psychologists away from atomistic approach of behaviorism to field oriented theories of conceptual, phenomenological, and behavioral dynamics.

Another significant development in biology is that Darwin's theory of evolution, depicting man as a species determined by chance circumstances, has been challenged. Leading mathematicians have discarded the basic evolutionary operators of mutation and natural selection and have expressed concern about the state of our understanding of evolution. Old answers are again new questions, and in the switch man has won the possibility of crucial responsibility for the energy system in which he participates.

Another shift in evolution theory that gives cause for rethinking the notion that destiny is a cosmic dice game is associated with the observation that an organism can and will reject some mutations and accept others in accordance with certain propensities of development, namely, anamorphosis and tendency toward greater negative entropy (the opposite of chance). Synthesizing this knowledge with the newly won phenomenological perspective arrives at a life-view in which man has a central role in the evolution of his species and the world's energy system. The creative relationship of man to his world is wrested from the subjective window in which human values enter into the structuring of environment. Suddenly it is again possible that how a man thinks and acts determines "reality" as much as it is determined by "reality," for what appears to be involved is a transaction in which man is a creative member.

The new view is advantageously served by the advent of open systems theory that contrasts with closed systems theory with which the outdated classical physics analyzed life as mechanism. An open system is an energy flow system, as a flame, for example. Open system analysis of human behavior sees individuals as active propensities rather than reactive products, as in the previous closed system analysis.

An era of open systems analysis in life-science is facilitated by new possibilities of computer technology. In the new view, life has become an unlimited propensity, guided by holistic genetic code program, in which member organisms cooperate creatively for self and community growth.

The new dynamic construct of the human condition was preceeded historically by a persistent scholarship of dynamic psychology that reaches back to Aristotle and includes the Chinese philosopher Laotse. In the old language, the propensity that moved matter from present to future condition was often defined as conation, a striving for the unrealized. Among variations of dynamic psychology, functionalism became a significant influence in American education, but instead of being used for self development, it was used for the development of American industry and technology.

In the recent affirmation of biology that healthy cells are natively active in support of self and holistic energy program, health is defined as the extent to which there is steady-state homeostasis, developmental homeostasis, and conation manifestation. That is to say, health requires the organism's integration with growth dynamics. The new view includes the old health requirements of successful survival coping, but it adds the further essential of active growth integration as a critical need for the development and maintenance of vitality. This theory is validated by many observations of organic life ending when it ceases to contribute to the growth dynamics of its life form.

With humans, the phenomenological and conceptual dynamics of "reality" establish the possibility of continuing growth integration beyond organic participation in reproduction of the species. In the theory synthesized, health, as growth integration, is an open system propensity to the bounds of and beyond the phylogenetic evolution prevailing. The growth-integration theory of health opens many psychological and educational possibilities and has profound medical and social implications.

To evaluate health in growth terms, scales of growth are useful. R. L. Mooney (1962) offers a tentative phylogenetic growth scale from lower to higher order of evolution of behavior. Creativity research offers similar scales from lower to higher order of creative functioning. A discovery of profound significance is that behavioral evolution advance involves comparatively the same variables as creative function advance. This puts highly creative people at the top of the behavioral evolution "dynamic ladder." Among applications of this finding is the theory that education for creative advancement is education for behavioral evolution. In this kind of education, individual value-finding and value-forming is the basic choice-action sequence of human development, which may synonymously be called behavioral evolution or creative development. This means that education for creative development is precisely the critical need of man at this point in his history. For, as review of life-science literature reveals, man's further advancement is blocked by his inability to growth-integrate sufficiently to fulfill the potential of his increasing brain output.

Said in other words, life-science literature reveals that the behavioral development of man is lagging malignantly in relation to the most advanced development of portions of his central nervous system. The consequence has been human behavior that science indicates to be leading to a Doomsday for homo sapiens and perhaps the world's larger life system.

In this crisis, educators have the opportunity to make education consistent with the revolutionary post-

Einsteinian knowledge of the human condition. Present day education may meet the challenge of its time by assisting the _self_ _repair_ of the non-integrative tendencies that today counter individual and community growth.

A review of present day educational organization was conducted to learn of the extent to which new knowledge offered by life-science has been recognized and utilized in developing school policy. Observing nationally, it was concluded that there is extremely little school organization for the called for self-directed approach to education. This was found to be true at secondary grade levels and especially true at higher and lower education levels. More specifically, there was insufficient practice and evaluation of self-directed education in the 1960's to warrant expectation that needed changes will come about through further evolvement of current school policy. The literature seemed to suggest that if such change could come in the 70's it would have to be from the diffusion of the experience of specific research projects. However, to this time there is little demonstration of awareness of the special kind of research projects that is needed; in fact, the funding of one such critical project has recently been rescinded.

Among noteworthy secondary school experiments have been those of the University of Chicago (Congreve, 1965), Ridgewood High School (1965), and Melbourne High School (1966). The literature of the latter program reminds of the possibility of new programs becoming directed toward technological development rather than self development.

Noteworthy college programs include Southworth's (1968) model for teacher training for the individualization of instruction. A comprehensive program of the recent past (Wilhelms, 1967) was the San Francisco State College Teacher Education Project. This was an attempt to assist the growth of prospective teachers through structured seminars, small group sessions, and individual conferences seeking education in the affective domain as well as cognitive domain.

Other college-level approaches to self development as a part of education are under way at Antioch (Baskin & Churchill, 1961), the New College Plan (Barber, 1965), and the Union Graduate School (Watson, 1970).

Review of research and development of education at lower grade levels was not conducted comprehensively, but limited inquiry suggested a lack of sufficient appropriate research at this crucial level of self development.

The most ambitious evaluation of the possibilities of self-directed education at college level is probably the work of Gruber and Weitman (1962). Their study extended over two years and covered programs in various departments of the University of Colorado. However, their work had little evaluation of the effect of self-directed education upon personality, which is the principal concern of the present study. In the cognitive domain, the University of

Colorado study found the mean of the self-directed students to be at the 41st percentile on the final examination of seven courses.

The research generally supports the Gruber and Weitman finding that the results of self-directed education are limited by the circumstance that students conditioned by many years under linear methods of education develop a dependence upon the rule of external authority. This dependence handicaps their ability to be self-directed. Some studies (Bivens, Campbell, & Terry, 1963) indicate the possibility that low ability may associate with extreme conditioning to direction from external authority. Gruber and Weitman are among researchers who have found that "lower general ability" students sometimes profit the most (academically measured) from structure for self-directed study.

In summation, the present research problem and objectives were presented against the background of an extensive review of literature. The review covered (1) a widespread movement toward a more self-help style of life, (2) life-science findings that define a new life view in which self direction is vital to health, and (3) education practices and research that tell of the possibility and problems of self-directed education.

The problem attacked by the present research was that of designing and evaluating an approach to education which would be appropriate implementation of the findings of the above review. The resulting synthesis was termed a Structure for Self-Directed Education (STRUSD Education). Since STRUSD Education has many possible applications, the design particularized operationally for the present research was termed Treatment A.

STRUSD Treatment A employed a paradoxical, authoritative structure oriented toward enhancing self direction as it proceeds with cognitive education under self direction. Treatment A has: (1) Two, one-half hour individual consultations to assist close, open, and caring relations. (2) Five small group meetings to increase self understanding, ego strength, and authenticity in human relations. (3) Whole class meetings with provocative discussions, visitors confrontations, and experiences not otherwise available. (4) Departmental sessions of special film and guest programs. (5) Authoritative structure of attendance, work reports, and other particulars that do not interfere with intellectual freedom and responsibility while advancing self direction with structure familiar to the authority-oriented student. (6) A work report procedure in which students must choose their own study experiences (including thinking time) and must report their learning experiences regularly.

In the research, STRUSD Education students were compared to control groups and to other concurrently taught, equivalent classes. In the quarter following the initial study, the research was replicated.

Hypothesis I tested whether STRUSD students would develop a significantly more positive attitude toward educational psychology. Hypothesis II tested whether STRUSD students would have significantly greater enhancement of Assertive Self-assurance and Adaptive Autonomy, which are factors of scales of the California Psychological Inventory. Hypothesis II similarly tested Freedom Orientation and Control Orientation which are factors of scales of Runners' Interview Form III. Hypothesis III tested whether STRUSD students would score as high on the Departmental Evaluation of Achievement as the mean of the combined other classes of the same subject (EPY 304) concurrently taught.

Analysis of covariance, Duncan's Multiple Range test, and t tests of difference between means were used in analysis of data. In the replication study the experimental group was divided into subgroups under different consultants so as to evaluate the instructor variable as separate from the treatment variable.

The results brought rejection of Hypothesis I. All other hypotheses were supported at either the .01 or the .001 level of confidence. On the Departmental Evaluation of Achievement STRUSD students always scored as high as predicted or significantly higher than predicted.

It was established that STRUSD Education has development and achievement effects that life-science theory and research indicate to be crucial for man's continued survival and evolution.

It was further established that self-directed students of STRUSD Education evaluate as highly if not significantly more highly than conventional, lecture-class students on the Departmental Examination of course content. Thus STRUSD Education was shown to allow affective gains while not handicapping cognitive education.

From the above review of research and further findings of this experiment, it is suggested that STRUSD Education may have potential for meeting the critical needs of this period of history. It may be that the students who rebel intuitively against "the system" and strike out with wild and ridiculous schemes are manifesting a healthful attempt to rescue the species from the Doomsday that science now predicts, unless something changes radically.

The present attack upon the problem has proceeded with the faith that people in general, and educators in particular, have amongst their numbers those who respond to empirical information such as has here been presented. Further interpretation is left to those who chose to apply these findings to their special orientation.

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APPENDIX

APPENDIX A

DEFINITION OF TERMS

Adaptive Autonomy

(Parloff et al., 1968) Factor III of the Parloff et al. factor analysis of the California Psychological Inventory scales used for the measurement of personality shift in this study. The Parloff factors are more fully explained in the Chapter 3 description covering the California Psychological Inventory. Adaptive autonomy is measured by elevation on the California Psychological Inventory scales that are the highest correlates of this component in each sample of the Parloff et al. research. These scales are: Flexibility, Achievement via Independence, and Psychological Mindedness. High scorers on these scales tend to be characterized by individuality, spontaneity, self-reliance, intraception, lability, interpersonal perspicacity, and high motivation to work independently.

Affective Domain

Describes the function of feeling tone, interests, attitudes, emotions, and values. Affective function varies from simple attention to complex organization of appreciation, conscience, adjustment, character, and other expressions of personality (Bloom, 1956, and Krathwohl, 1964, as edited by Alf).

Assertive Self-assurance

(Parloff et al., 1968) Operationally defined as Factor II of the Parloff et al. factor analysis of CPI scales. It is measured by elevation on the scales that are the highest correlates of this component in each sample. These scales are: Sociability, Self-acceptance, Dominance, Social Presence, and Capacity for Status. These scales describe an assertive, outgoing, self-confident, expressive, and competitive style of relating to others. Such individuals are usually perceived as vigorous, ambitious, aggressive, and persuasive.

Awareness

The window. The psychological universe composed of external input (the sensory constituents) in transaction with internal input (the genetic program and further memory, conceptual, and imaginative constituents).

Cognitive Domain

Describes the function of recall or recognition of knowledge and the development of intellectual skills (Bloom, 1956).

Control Orientation

The control orientation cluster includes the following elements (Runner & Runner, 1965): Rules Orientation, Planful Practicality, Passive Compliance, and Hostility. The Runner rationale of elevation on these scales as an operational definition of control orientation is subscribed to here. The Runner definition assumes that self-control necessarily involves self-denial. This measurement intends to offer clues as to self-suppression and distrust.

Closed Structure Classroom

A teacher-centered classroom environment in which one person, the teacher, makes the decisions regarding the elements of instructional design (Curry, 1970).

Creative Teaching

The fostering of structure (see definition of *structure of education*) for self-direction in the searching, choosing, and forming of life values.

Disciplined Effectiveness

(Parloff *et al.*, 1968) Operationally defined as Factor I of the Parloff *et al.* factor analysis of CPI scales. It is measured by elevation on the scales that are the highest correlates of this component in each sample. These scales are: Self-control, Good Impression, Well Being, Achievement via Conformance, Tolerance, and Socialization. Persons with high scores on these scales tend to be described as disciplined, painstaking, reliable, persistent, industrious, and accepting of differing social beliefs.

External Input

The sensory constituents of the transactional process through which awareness (the window) is consequent.

Freedom Orientation

The freedom orientation cluster (Runner & Runner, 1965) includes the following elements: Experimental Orientation, Intuitive Orientation, Resistance to Social Pressure, and Tool Interests. The Runner rationale of elevation on these scales as an operational definition of freedom orientation is subscribed to here. Runner defines that this measurement may provide clues to (1) how conscious a person is of having strong personal preferences which may require special efforts to control, and (2) how aware he is of himself as an individual.

Humanitarian Conscience

(Parloff *et al.*, 1968) Operationally defined as Factor IV of the Parloff *et al.* factor analysis of CPI scales. It is measured by elevation on the scales that are the highest correlates of this component in the samples, but not in all cases the highest correlates in each sample. To better explain this more complex selection of scales, the loadings in the different samples are here given along with the listing of pertinent scales. In the adult sample, the highest loadings are: Communality (.62), Responsibility

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(.60), and Femininity (.49). In the Potentially Creative Scientist, high school seniors, PCS sample, the highest loadings are Femininity (.84) and Responsibility (.50). Of these scales, the present study measures Humanitarian Conscience by elevation on the Femininity and Communality scales. The Responsibility scale is not used because with the PCS sample it loads higher on Factor I. For the high school seniors, PCS sample, this factor is characterized by breadth of interest, sensitivity, and conscientiousness. For the adults, high scores on this factor associate with conventional, dependable, resourceful, sensitive, and efficient tendencies.

Independent Study

Defines the opposite of dependent study, but the term carries the potential of a great deal of erroneous communication when the criteria for qualifying study as independent or dependent are not defined by the person using the term. Clear communication requires specification of who carries the responsibility for nature of assignments, objectives, curriculum organization, evaluation, and long term goals of education. Independent study is sometimes intended to mean Student Directed Process (SDP)and/or Student Directed Structure (SDS); at other times it is intended to mean Teacher Directed Structure (TDS) and/or Teacher Directed Process (TDP). In other words, education literature reveals

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the use of the term *Independent Study* by just about everyone to say just about anything. Educators advancing opposing notions of education may both label their intentions *Independent Study* and propose thereby the opposite for one another. On the one hand, self-directed education may be intended. On the other hand, individualized instruction may be intended. Thus, the careful reader must be given knowledge of criteria before he can take denotation from a particular usage of *Independent Study*. To avoid crucial confusion, more definitive terminology should be substituted for this term.

Individualized Instruction

The process of submitting an individual to an externally designed and controlled program that is based on institutional evaluation of individual needs and is oriented toward changing the individual to meet certain predefined behavioral objectives.

Internal Input

The genetic program and further memory, conceptual, and imaginative constituents to the transactional process through which awareness (*the window*) is consequent.

Life Values

Those factors of awareness that have subjective worth in their own right, intrinsically. These factors include aesthetic, social, religious, sensory, and other dimensions. In this definition, subjective worth is distinguished from objective worth.

Momentary Life Space

The total situation constituting the world of actuality at a given moment. In this writing, it is sometimes referred to as *the window*. As such, it is a product of *awareness*. A person's life space is conceived as composed of regions (states of affairs), objects (including persons), goals, instrumentalities, and values; intraorganismic factors are also included. The emphasis is upon interaction of organism and environment in an organized and unified field (English & English, 1958, based upon the psychology of K. Lewin).

Objective Worth

The instrumental function or meaning (in the sense of means to ends) of momentary life space.

Orientation

A disposition on the part of an individual to respond in a certain way to classes of stimuli where the stimuli may be people, ideas, objects, or other phenomena. An orientation is a broader term than attitude since the former incorporates a set of related attitudes or attitude patterns (Curry, 1970).

Process of Education

The engagement in developmental experience. It is the non-structural factor of education. Process and structure together compose the whole of education. The concept assumes a gradation from process to structure.

SDP

Self-Directed Process

SDS

Self-Directed Structure

Self-Directed Process of Education

Defines individual locus-of-control over the process of education without defining the locus-of-control over the structure of education.

Self-Directed Structure of Education

Defines individual locus-of-control over the structure of education without defining the locus-of-control over the process of education.

Structure of Education

The organization of developmental environment. It is the non-process factor of education. Structure for Self-Directed Education (STRUSD Education) has three components: (1) Course organization, which defines particulars of place, meetings, guests, special programs, class exercises, and other particulars that make up the format through which the process of education takes place. (2) Academic accountability, which defines the particulars through which the teacher is to acquire knowledge of the development and achievement effects (which may be the affective and cognitive gains) of the individuals pursuing education. (3) Psychodynamic organization, which defines the psychological structures through which the process of education is to be facilitated. The climate of teacher-student relationships, student-student relationships, and individual support from the course structure are examples of components of psychodynamic organization.

STRUSD Education

Another term for Teacher-Directed Structure for Self-Directed Process of Education. More briefly, the term denotes Structure for Self-Directed Education. This is not to be confused with lack of control of the educational environment. An active structure for promoting self-direction is defined.

Student-Centered Education

A broad term that implies a dichotomy with subject-centered education. Student-Centered Education includes student-centered instruction, student locus-of-control, student-directed process, self-directed process, self-directed structure, and self-directed education (all of these terms are here alphabetically listed and defined). In summation, the term Student-Centered Education usually requires further qualification in order to be sufficiently definitive not to cause confusion.

Student-Centered Instruction

Defines education with the locus-of-control external to the students being educated. The external locus-of-control is defined by the term instruction. Whether the instruction is collective or individual is not defined.

Student-Directed Process

Defines a student locus-of-control over process without defining the locus-of-control over structure or the category of student direction such as self, democratic group, authoritarian-student, or some other variation of direction.

Student-Directed Structure

Defines a student locus-of-control over structure without defining the locus-of-control over process or the category of student direction such as self, democratic group, authoritarian-student, or some other variation of direction.

Student Locus-Of-Control

Defines student center of control without defining the category of structure or process of education resulting from that center of control.

Subjective Worth

The intrinsic positive valence afforded by momentary life space. It is synonymous to life value.

TDP

Teacher-Directed Process

TDS

Teacher-Directed Structure

Teacher-Directed Process of Education

Defines a teacher locus-of-control over process without defining the locus-of-control over structure or the category of teacher direction such as closed, open-closed, or open (Curry, 1970) or a category by some other system of classification.

Teacher-Directed Structure of Education

Defines a teacher controlled organization of learning circumstances. In the Curry Model of Class Structures, which is included in Appendix B (Curry, 1970), such structure may be closed, closed-open, or open. In the present research, the TDS is closed in both experimental and control groups. This means that all decisions of learning structure are made by the teacher. This includes decisions as to examinations, grading criteria, class attendance, assignments (if any), teaching-learning strategies used in class sessions (such as discussion, A-V aids, etc.), laboratory experiences, and textbooks required (if any).

Teacher-Directed Structure for Self-Directed Process of Education

Defines TDS for advancing education with individual student objectives and individual student control of his or her learning program for the meeting of self-established objectives.

Teacher-Directed Structure for Teacher-Directed Process of Education

Defines TDS for advancing education with teacher objectives and teacher control of the student's learning program for the meeting of teacher-established objectives. In this research the TDS-TDP uses conventional lecture methods of classroom learning with systematic text assignments and graded tests covering the assigned material.

Teacher Locus-Of-Control

Defines teacher center of control without defining the category of structure or process of education resulting from that control.

Unstructured Education

The development experience of spontaneous involvement with chance environment. It is the manifestation of no control over development environment as specified by such components as course organization, academic accountability, and psychodynamic organization. If a cliche could function as a definition, unstructured education might be called the chaos of the school of "hard knocks."

Valence

That property of an object or region of life space by virtue of which it is sought (positive valence) or avoided (negative valence) (English & English, 1958, based upon the psychology of K. Lewin).

Window

In the terminology framed for the present phenomenological perspective toward educational psychology, the window is the transactional consequence of internal and external input (see definition of awareness).

APPENDIX B

COURSE HISTORY AND TREATMENT DOCUMENTS

APPENDIX B(1)

INITIAL INSTRUCTIONS FOR CONTROL AND EXPERIMENTAL GROUPS

IT IS VITAL THAT THE INSTRUCTOR NOT REFER TO THE CLASS AS AN EXPERIMENT.

Please get names and phone numbers of all people missing any pre-tests, and list the tests that each person has missed.

Pre-test Procedures
TDS-TDP Group of the
TDS-SDP Research Plan

To assure uniformity in procedure between control and experimental groups, the following guidelines are suggested. These suggestions apply mainly to the opening course sessions.

TO BE COMPLETED AT THE OUTSET OF THE COURSE:

1. Administer the Affective Rating of Educational Psychology before making any introductory remarks about the course. This semantic differential scale contains a cover sheet explanation. The instructor should read this cover sheet aloud. The instructor is free to answer questions in regard to this instrument. About 15 minutes may be needed for this testing. All students should be allowed to finish.

2. Give the name of the text of the course and make necessary introductory announcements.

3. Administer the California Psychological Inventory to all students. This will require from 30 to 50 minutes. All students should be allowed to finish. The instructor should also take this inventory at his convenience. The inventory may be taken as a take-home test if and when the instructor feels that the tests and answers will be returned properly. It is important that all tests be returned.

4. At the end of the first session or at the beginning of the second session, administer the Runners' Interview Form III to all students. This takes about 20 minutes. All students should be allowed to finish. The instructor should also take this instrument at his convenience.

5. Administer Form C of the Departmental Evaluation of Achievement, as a pre-test. Allow one hour. Collect all papers after a one hour time limit has passed. Announce the following at the beginning of the examination: "You are about to take an examination which will help determine the amount of content information in educational psychology you now possess. You are encouraged to read each item and answer it to the best of your ability even though you may not have previously encountered the item. Your responses will be used to help improve the quality of experiences in EPY 304. Your score on this examination will not be used as a criterion of your final grade in the course. There is a

one hour time limit."

6. After the above tests have been given, announce the following: "The global objectives for this course, EPY 304, are the development of specific positive attitudes toward the field of educational psychology, the application of knowledge to the professional setting, and the mastery of a body of factual information."

7. Announce that make-up tests will be held from 9 a.m. until 2 p.m. on Saturday, March 28, 1970, in room 305, 3rd floor of the Varsity Building of the University of Georgia.

8. The instructor is NOT to announce the following, but is to be aware of the following:

   (a) This is a closed structure class in the research design. The instructor is free to proceed as he will, but he is to be the only decision-maker in the classroom. This is a TDS-TDP class.

APPENDIX B(2)

TDS-TDP-1 TREATMENT, AS COMPOSED BY INITIAL CONTROL GROUP INSTRUCTOR

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EDUCATIONAL PSYCHOLOGY 304

GERALD A. STRAG

COURSE OBJECTIVES

1. To provide an awareness of the contributions which physiology and philosophy have made to the development of the science of psychology.

2. To provide a panoramic view of the educational areas open to people who want to work with people. This was attempted by introducing them to research literature. An attempt was made to make them intelligent consumers of research.

3. To provide the students with different theories of child development and classroom practices appropriate to the particular age level of the child.

4. To introduce the students to contrasting theories of the human mind and the relationships existing between the mind and the variables influencing it.

5. To provide the students with various theories of the mind and intelligence and how different men attempt to ascertain means of measuring the correlates of the mind.

6. To provide the student with some of the different learning theories: Classic; Operant; Guided; Discovery.

7. To provide the student with the knowledge and means of being self-evaluative, on an objective basis, and the need for periodic self checking.

PROCEDURES USED TO ACCOMPLISH COURSE OBJECTIVES

MATERIALS

1. A course outline, in mimeograph form, was provided during the first week of the quarter.

2. The course content was divided into units. A syllabus was provided for each of the course units in which specific content was called to the attention of the student.

MANNER OF PRESENTATION

I. Approximate distribution of class time.
    a. Lecture - 60 percent
    b. Class discussion - 20 percent
    c. Student presentations - 20 percent

II. Outside class activity
    a. Library research (optional)
    b. Taped lectures accompanying each unit (required)
    c. Specific reading assignments (required)

STUDENT APPRAISAL

1. An examination, consisting of matching, multiple choice, true and false, fill-in and essay was administered for each unit. The content for each examination was based upon the unit objectives stated in the syllabus. Questions were composed of materials; in class lecture; students' comments which were reemphasized by the instructor; student presentations (research related to specific reading assignments assigned to the class); and taped lecture material, which may or may not have received emphasis in class.

2. Students were all required to participate in presenting one or more research articles to the class. The manner of presentation was left to the student. Students were aware that a grade would be assigned on the following criteria: a) familiarity with the article they reviewed; b) their ability to relate the article to the unit being studied or to past units; c) manner of presentation (whether the article was read or discussed); d) student use of visual aids or mimeographed material; e) the amount of observable enthusiasm generated in the class taking the form of class discussion.

3. The class was assigned a term paper during the third week of the quarter. They were helped in choosing areas of investigation, but were not specifically assigned a topic.

The term paper consisted of identifying a problem pertaining to their area of interest; justifying the significance of the problem by citing at least 20 research articles related to the problem; and, on the basis of their review of the literature, to formulate a hypothesis. The term papers will be evaluated on the basis of the relevancy of the research articles selected; on the student's ability to interrelate the articles intelligently; and on the logic which the student employed in formulating the hypothesis or hypotheses.

APPENDIX B(3)

STRUSD TREATMENT A

AN EXPLANATORY DIRECTIVE

Educational Psychology 304 (Herb Alf, Instructor)
A teacher-directed structure for self-directed process of education (TDS-SDP education)

An Explanatory Directive

This course will be a novel experience for some students. It can be ventured that many students will become enthusiastic about the potential of this self-help approach to education. In any event, students hold the power over the success or failure of what is about to begin. So, it is vital that each student begin with a clear understanding of the objectives, structure, and process that form this program.

Firstly, this approach to education is not new. It can be found in man's earliest history. A respected Classic model is afforded by the Socratic paradigm in the mode of *The Republic*. However, our approach takes advantage of present day understandings offered by behavioral science, and it utilizes modern learning tools such as programmed texts and audio-visual aids, offered by science and technology. Finally, our approach has an occasional signature or flourish won from distinguished philosophers, artists, and educators of our time.

For beginning advice, we borrow a quote from the Purdue University model of Psychology 120 (Rubinstein, 1969):

> If you expect your instructor to be a dispenser of information which you intend to translate dutifully to your notebooks, commit to memory, and regurgitate at the appropriate moment, forget it! We have well-organized textbooks already nicely designed to contain information. We feel that you can obtain a great deal of your education staying at home reading your textbook. As a matter of fact, that is essential to the classroom experience we intend to provide. But the classroom is not another kind of textbook! It is a place for stimulation, clarification, and discourse . . .

Global Objectives of the Course

(A) The development of specific positive attitudes toward the field of educational psychology.

(1) Appreciation of possibilities opened by educational psychology as a tool for coping with problems and working towards ideals.

(2) Appreciation of the need for teachers who are committed to the use of behavioral science for personal development as opposed to the personal exploitation to which self-centered interests may be committed.

(B) The application of knowledge to the professional setting.

(1) Self understanding of personal limitations and assets with regard to teaching as a career.

(2) Self development to enhance creative teaching: the art of activating, facilitating, and evaluating educa-

tional experience with regard to joyful learning, personal growth, and value commitment, while possibly serving as a more specialized instructor.

(C) The mastery of a body of factual information.

(1) A detailed breakdown of this objective is provided in a separate paper.

The Role of the Instructor

(A) To administrate the course as a University agent.

(1) Activating and facilitating the program.

(2) Coping with individual and class problems that handicap attainment of course objectives.

(3) Evaluating attainment and assigning graded academic credit to the students according to his best judgment.

(B) To maintain the teacher-directed structure of the course.

(1) Assuring that students hold to the prescribed structure through which the course is designed to advance.

(C) To assist the self-directed development of the students.

(1) Providing evaluation of deficiencies and progress as a service to each student.

(2) Offering information and suggesting sources and pursuits that might further serve the student's expressed needs, desires, and/or intentions.

(3) Getting to know his students personally and allowing himself to be known personally so as to integrate course program with the intimate world of personal values and aspirations.

(D) To serve as group leader in the interchange sessions.

(1) Provoking, focussing, advancing, and otherwise controlling encounter and discussion.

(2) Scheduling interchange topics and arranging for advance preparation as deemed appropriate.

(3) Allowing unstructured migrations of interchange when deemed appropriate.

(4) Utilizing guests, audio-visual aids and/or any other means of effecting more significant course interchange.

(E) To provide such lectures as are deemed by himself or class members to be important to the course and are nevertheless not readily available in written form.

(F) To communicate a person to person concern for each student and to demonstrate such confidence in and encouragement of each student as can be honestly and positively offered.

(G) To offer, from his professional perspective, such analysis and synthesis of course information as may enhance the development of students toward their expressed aspirations.

Specific Class Structure

The educational decisions of the class follow what the Curry (1970) research designates as a closed structure.

1. Number of examinations: Aside from research related inquiry, there will be no examinations for other than personal information purposes except for the departmental evaluation near the end of the course and a final examination.

2. Type of examinations: The departmental evaluation will consist of multiple choice questions. The final examination will consist of essay questions of a problem solving nature calling for creative application of educational psychology.

3. Departmental exam reflected in final grade: The departmental evaluation T score will count for 40% of the course grade.

4. Other criteria for assigning final grade. The final exam will count for 10% of the course grade. The remaining 50% of the course grade will be established from instructor evaluation, in conjunction with student self-evaluation, of effort and quality of participation in the course program.

5. Class attendance required: Unfailing and prompt attendance is not only expected but required for all scheduled sessions, whether they be individual consultations, small group conferences, or meetings of the whole class. When serious circumstances prevent attendance, the instructor will be most concerned and will expect a personal explanation from the student. Carelessness with regard to promptness and attendance will be weighed as lack of effort, in evaluation of course grade.

6. EPY 304 Guest Lecture attendance required: Except for when the class is specifically excused from attendance at an evening guest lecture or motion picture session, each student is required to be in attendance at all special sessions and when absent must make individual arrangement for performance of a special project to compensate for the absence.

7. Teacher gives daily assignments: The instructor will at his discretion give daily or longer-term assignments that structure personal exploration, research of literature, testing of sources of information, and whatever other invention may be considered instrumental to the basically self-directed process of the course. Assignments will have the further objective of preparation for group interchange, as suggested by the Purdue, Psychology 120, model (Rubinstein, 1969).

8. Teaching-learning strategies used (lecture, discussion, A-V aids, combination, etc.): Formal lectures will be restricted to vital course material not available in other form. Meetings will focus on interchange rather than information dissemination, as much as possible. The instructor will advance the questioning, and, if specifically requested, may offer his opinion in interchange, but he will principally follow the Purdue University model of Psychology 120. That is, he will try to keep the discussion flowing and relevant, try to help students recognize each other's talents and try to help out in a pinch when specific clarification is not forthcoming from other students (we may note the Purdue concept of instructor as fellow student).

Students may be guided by the Purdue directive of Psychology 120, as quoted on page one of the directive.

The class will meet as a full body during the first 12 sessions of the course. Sessions 6 and 9 will consist of the administration, scoring, and evaluative discussion of a test of 270 multiple choice and true/false questions covering the Gibson, programmed text of educational psychology. Session 10 is left open to such student and instructor arranged program as the exigencies and/or desires of particular circumstances structure. (This flexibility will allow for Gibson testing during session 10 in event that the course schedule gets pushed back by discussion enthusiasm or similarly unplanned happenings.)

Beginning with the 5th week of the course, with commencement of the study of Existentialism in Education, the class will meet as a whole group twice a week. During these sessions, administrative functions will be conducted and special programs and laboratory experiences will be provided at the discretion and invention of the instructor. As mentioned before, the meetings will not be used for the transfer of information that can be more efficiently transferred in independent study. Instead, the course will seek to facilitate access to educational resources. In accord with the Purdue model, the use of the library as an outstanding information center will be encouraged.

Beginning with the 5th week, the members of the class will also meet once a week in groups of from 6 to 7 members each, including the instructor. These sessions will concern themselves with the sharing of the learning experience of the self-directed education of the various members. Interchange is expected to include honest encounter; defense and exploration of personal values; support and attack of the status quo; imaginative sharing of individual conceptions of ideals and how they may be promoted through application of educational psychology; discussion of anticipated teacher-student problems of the particular members of the group; and whatever other interchange may serve to awaken intrinsic motivation, integrated personality, and humanistic effectiveness in a teaching role.

Beginning with the 3rd week of the course, each student will meet with the instructor at least twice, in approximately 1/2 hour sessions separated by three weeks. A third such consultation is optional to the student. At the beginning of each of these meetings, the student will give the instructor a written report of how he has spent his time in the self-directed education process; for this report, the instructor will expect description of approximately two hours of outside work per week for every hour of credit offered by the course. The student carries the freedom and responsibility to determine the nature of the effort, but the teacher-directed structure defines the amount of effort that must be expended for course credit. As long as the student's effort is definitely associated with self-development within the course structure, diverse and imaginative departures from usual educational engagements are not discouraged, to the extent that they seem to be sincere efforts.

The individual consultations will also provide evaluation of the student's progress and needs as the course proceeds. Through these meetings, it is intended that the instructor and student will get to know each other better as individual human beings apart from course program. A part of the initiative as to what is brought up in consultation is left to the student. In event that personal problems of a clinical nature come into the discussion, the student will be referred to appropriate psychological counseling; for the consultation sessions intend to avoid psychiatric well-doing--though they may be half-way house talks between the multiversity and the couch that carries the privilege of telling it as it is. Especially for prospective teachers, such honest, individual interchange between instructor and student is considered, in the course design., to be an important function of a basic Educational Psychology course; in its unambitious way, it serves the end of healthier, more capable teachers--teachers who are more likely to use their learned psychology for the creation of richer educational experience for their students.

The instructor may employ other teaching-learning strategies of his own invention. Students are invited to offer suggestions of learning experience to the instructor, but the responsibility for the structure of class sessions is not rested with the students but with the instructor. The instructor will program those strategies that in his professional judgement seem most appropriate to advancing the self-directed process of the course.

9. Amount of time spent on content areas of the course: It is expected that students will expend two hours per week, aside from class time, for every hour of course credit the course offers. This well-known formula of education arrives at a requirement of 10 hours of outside work per week for the course EPY 304. The instructor will not detail

how this time shall be spent, but he will check the work reports submitted at each consultation session to be sure that they detail the amount of time spent on the various content and/or other areas of the course.

10. Type of laboratory experiences employed: Upon occasion the instructor may provide laboratory experiences that in his judgment provide important learning experiences that would otherwise not be available. The instructor will decide upon the types of laboratory experiences that are to be conducted. Some examples follow:

(a) Guests are invited to the class to present their cause, orientation, pattern of self actualization, etc., as demonstrations of psychodynamic patterns of effectiveness. Students question, confront, and empathize as they may choose. Problems of the larger community are thus brought into the personality dimension of particular people and what they are doing with their lives. This laboratory experience is considered to be particularly appropriate for the support phase of the course, at the end, following the action phase. The behavioral models are intended to support individual aspirations to do more about the particular values the individuals would like to see better advanced.

(b) A psychodrama is staged with members drawn from the class. Scenes may be chosen from school settings to help get at student-teacher relationships at a chosen grade level. Or scenes involving social problems may be staged. Treatment A includes a four member psychodrama of a mixed (black/white) young couple confronting their parents for consent to marry.

(c) Students write papers on the least effective and most effective person they have ever known. These papers are discussed and points of similarity and difference are noted. Finally, the discussion is turned to the question of what can be learned from these papers, for the purpose of self-development of the class members.

(d) Under an experienced director, the students are introduced to encounter and sensitivity training experience.

11. The text for the course is *Educational Psychology, a programmed text*, by Janice T. Gibson: An additional paperback text is *Existentialism in Education*, by Van Cleve Morris. Each student is required to have both texts. In addition, the instructor will distribute course materials and designate literature and possibly other media that contain information he deems to be essential to the course. A number of books that relate to the course are available at the reserve book room of the library. Students are required to visit the reserve room and investigate what books are available there and the nature of the content of each of the books there. In addition, certain tape recordings are available in Room 201 of the library for replay there.

Students are required to investigate the nature of this study material, also.

In summary, the above 11 points detail a teacher-directed structure for a self-directed process of education. It is imperative that each student understand that the instructor assumes no responsibility for student progress through course content. Each student is in charge of his own planning and management of learning and self-development. At the beginning of the course, the student will receive a list of course objectives; how he achieves these objectives is left to his own idiosyncrasies of personality and intentions.

It is intended that each student shall have the freedom to fail; for it is believed that only through such freedom can he discover the responsibility of a choice to succeed. It is recognized that this structure invites painful lessons. Yet it is a deliberate structure, with the kindest intentions. For the researcher knows no system for distilling the anguish from the growth process that promises each his own creative fulfillment.

Special Directive to Students on Format and Content of Work Reports:

As specifically instructed, the work reports will cover 10 hours of outside work per week. Each report will cover the unaccounted-for period prior to consultation. Students are to submit a work report at each consultation.

The reports are to be legible and neat so as to facilitate instructor review of time expenditure, with cumulative sums. The reports will be a part of the student's permanent file and will be a factor in determining the course grade.

Specific entries should include: (1) Clock time in and out of the work experience, and total time expended, in a column to one side. (2) The nature of the work. If it is reading, the publications and authors involved. If other kinds of experience, describe specifically. If ThT (Thinking Time), nature of content and process; ThT time is allowable in proportion judged by the instructor not to be a handicap to other aspects of the student's development. ThT must be focused upon the course, individuals of the course, and/or SDP of the student involved. It is reminded that ThT entries might search for discovery and support of positives in oneself, other members of one's Small Group of SDP, and the larger membership of the SDP course. (3) Response to the experience. This notation can be brief or lengthy, according to the nature and needs of the student transaction under report. But it should be remembered that the instructor is less concerned with the work than with the effect upon the worker.

The student is given the freedom and corresponding responsibility of choice of his SDP work within the TDS framework.

APPENDIX B(4)

STRUSD EDUCATION

EXPERIMENTAL TREATMENT A

EPY 304

OUTLINE

Text: (1) Gibson & (2) Morris, Existentialism in Education

Exams: Departmental (80 item multiple choice), broad coverage of educational psychology (40% of grade). Final-essay problem solving (10% of grade).

Other requirements: Two (2) personal interviews -- 30 minutes each. Small group attendance and participation, 5 sessions, 2 hrs. daily assignments. Three (3) written reports on utilization of time in independent study. Class attendance.

50% of the grade will be awarded on these items, plus the instructor's assessment of your "quality" of participation.

Expectations:

(1) Covering course content (factual information) is a student responsibility. The professor and the class is available to consider such facts as may not be adequately covered in available text.

(2) 10 hours per week study outside of class.

(3) "Quality" of participation is defined as activity, openness, honesty, willingness to invest yourself, speaking out, expression of your attitudes and values, positive and negative, facing controversy, openness to self-exploration.

(4) Taking the responsibility to direct yourself within the provided structure.

(5) Integration of the total experience toward a higher utilization of your potentials.

INTRODUCTION

Whereas this treatment is an eclectic invention drawn from diverse psychological, sociological, and philosophical literature, as well as the personal experience and intuition of the researcher, certain educational projects are noteworthy influences upon the present research. Among these are the San Francisco State College Teacher Education Project (1963) and Rubinstein's (1969) Purdue University Psychology courses. The present project makes no claim to the full dimensions explored in the mentioned programs, yet it seeks to borrow from these preceding efforts. The Explanatory Directive opens with a quote from the Purdue Psychology 120 directive. Here, it seems appropriate to open with a description of some of the rationale of the San Francisco State College Teacher Education Project, as that work helps orient the intent of this treatment. Ultimately, an instructor's appreciation and furtherance of what is intended is vital for replication of the study; atomistic, point by point conformity with the more definitive procedures is insufficient if the daimonic (May, 1969) impetus is lacking.

In the San Francisco State College Teacher Education Project, it was reasoned that at least three major ingredients must be included:

1. A wealth of opportunities for revealing, exciting, perhaps baffling experiences must be laid open.

2. The opportunities must occur in an atmosphere of such freedom and autonomy that each student, under guidance, could largely follow his nose as his initially half-sensed intuitions of his own aspirations and needs grew into clearer and clearer perceptions of himself. Furthermore, the whole system must operate so unflinchingly in a climate of positive regard and personal acceptance that daring would be possible because failure would be all right.

3. Feedback must be facilitated so that each student would learn about himself from consideration of his experience. This was not a matter of the faculty's telling the student "how he was doing." It involved all the complexities of any genuine learning environment.

Wilhelms (1967) tells that "exploratory experiences" became a common term in the San Francisco project. He writes, "We wanted such experiences to be greatly varied, fitted to each student at the stage he was in. We developed a great faith that he could find them better for himself than we could find them for him, although we could set the stage and help him perceive his needs."

The San Francisco project approach to the psychology of education for prospective teachers was based upon a new premise, for which it gives credit to Combs (1964) for its most definite formulation to date. Combs turns his back on the "competencies approach" and argues for a "self-as-instrument" concept. Combs writes:

> We may define the effective teacher as a unique human being who has learned to use his self effectively and efficiently for carrying out his own and society's purposes. The production of this kind of person is not a question of teaching him what to do. Modern perceptual psychology tells us that a person's behavior is the direct result of his perceptions, how things seem to him at the moment of his behaving. To change a person's behavior, it is necessary to help him to see himself and his world differently.

After a year of preliminary study, the San Francisco State College Project on Mental Health in Teacher Education (Wilhelms _et_ _al_., 1963) offers that,

> What a teacher is may be more important to the full development of his pupils than anything he does . . . The objective of teacher education must be to help each aspirant make himself into not only the most competent practitioner, but also the most fully developed person he is capable of being.

The monumental work of Hughes (1959), proceeding from minute analysis of teacher acts, finally arrives at data from which one may interpret that the better teaching was related to openness of personality, buoyancy, positive outlook on life, and supportive warmth.

Wilhelms, in summarizing the evidence accumulated during four years of evaluated exploratory experience of the San Francisco State College Teacher Education Project, emphasizes that the project staff had grown firmer in its backing that ". . . Teacher education must be concerned with personality and with methods which will change personality."

The TDS-SDP course respects the above perspective. In so doing, it does not intend to slight the importance of educational psychology tools for the teacher. The present treatment is designed to promote both skills competency and personality development.

The self-directed process of the treatment is an approach consistent with the above-mentioned theory and practice. The teacher-directed structure is an innovation of this particular study, but, again, it borrows from the work of others, as well as from the researcher's personal teaching experience. Fundamentally, the teacher-directed structure is designed to encourage and enhance the self-directed process of student development. It has been the researcher's experience that such structure is of particular support for students newly placed in a self-help program after many years in a closed teacher-directed structure, but with no self-direction process. It is the intent of the present treatment to ease the transition to self-direction by keeping a part of the authoritarian structure with which a student may be familiar and utilizing the authority in a way which, in effect, will diminish its power, as it increases the strength and vigor of self-directed activity. In this design, then, the TDS will be diminished progressively as the self-directed students assume the responsibility for the freedom afforded them by the TDS.

The day to day, detailed experimental treatment is not included in this report. It is available for replication purposes. The detailed treatment of 30 some pages covers a course of 30 sessions of 1 hour and 55 minutes each (including a 15-minute break).

Among the reasons for not including the detailed treatment in this writing is an intention to encourage self-direction and creative teaching on the part of educators seeking to explore STRUSD education possibilities.

To spell out every detail may have its point as a research technique. The record is available as so needed, and a day to day course history of SDP-1 is also on record for research availability.

But the researcher hesitates to advance precise treatment that may be read as atomistic recipe. Such implementation is inappropriate for an open systems theory of education, in which spontaneity in advancement of singular propensities is the theme of the day.

From my major professor, Dr. Torrance, I remember the lesson that every teacher needs room to create his own teaching inventions.

APPENDIX B(5)

STRUSD TREATMENT A:
SMALL GROUP SESSIONS

APPENDIX B(5)

STRUSD TREATMENT A

SMALL GROUP SESSIONS

SMALL GROUP SESSIONS

Session One:

1. After introductory discussion, the consultant asks individuals if they are willing to reveal their CPI profiles to one another. Any reluctance is respected. The session continues with the aid of volunteered profiles. Full-group and individual sessions will have given advance preparation on the meaning of the various scales. The overall profiles are now interpreted and discussed with relationship to the dynamics of becoming a more effective person. The word effective is underlined because it is a term that each member of the group may define differently for himself or herself. In terms of the research under way, it is defined by elevation on certain scales of the CPI and Runner's Interview Form III; the rationale for this holds that these scales are instrumental to whatever effectiveness the individual may choose for himself or herself. TO PROTECT RETEST VALIDITY, SPECIFIC TEST QUESTIONS SHOULD NOT BE DISCUSSED.

2. The session includes an exercise designed to open communication of acts and attitudes of which the individuals are proud. The suggested, but not obligatory, approach is to go around the group, receiving contributions as follows:

   a. An early memory.

   b. An early memory of being proud of something.

c. More recent happenings of which I am proud.

d. Complete the sentence, "I am proud of being . . ."

3. It is expected that the consultant will use the session to advance the course objectives as set forth in the explanatory directive. This session is the beginning thrust of the self understanding inquiry. It, firstly, aims to motivate further study.

Session Two:

The theme for this session is CARING.

1. The consultant conducts discussion of the following questions:

a. Do some people care about the world beyond their self-interest more than other people do?

b. What determines what we care most about?

c. How can one explain newspaper accounts of people watching crimes without trying to stop them?

d. Are people different at birth in regard to caring about the larger world and/or themselves?

e. Is it possible to change one's values in regard to CARING, as a part of college education, or is it too late?

f. Is it necessary to suffer personally in order to come to care about the suffering of other people?

2. The consultant breaks off discussion and calls for reflection on the question, "What do I, personally, care

about?" Each participant makes an individual statement in regard to this principal question of the session. Each individual is given time to respond, regardless of whether or not he or she is reluctant. The consultant may, lastly, choose to offer his own statement, as a fellow participant, and he may choose to offer further summation of the dialogue, bringing in his knowledge of pertinent research and his own views.

3. In general, the session intends to facilitate openness, acceptance, and trust. Thus, the consultant works to maintain a non-critical atmosphere as personal views and concerns are revealed. Through supportive facilitation, psychological safety is structured for advancement of the course exploration, and through the personal focus, personal concern is communicated.

Session Three:

1. Since the group has by now spent four hours together, enough time has elapsed for feelings and opinions to have generated in respect to each other. The consultant asks the participants again to speak openly and honestly, as in the sessions focusing on pride and on caring. This time they are to express openly the feelings they have in regard to each other. One by one the participants become the center of attention as the rest of the group each takes a

turn at revealing their feelings and thoughts relative to the person centered upon.

It is not expected that all this discussion will be facilitating; some may be very negative. The consultant will use his discretion as to how negative and/or hostile he will allow encounters to become. Since this is the beginning of the action phase of the course, it is suggested that participant criticism of one another may be openly accepted though it may not be openly joined by the consultant, at this time.

2. Consultant variable time is here structured into the treatment to permit catching up with the schedule and/or such other experience as the consultant may choose to structure for his particular group.

Session Four:

1. Runners' Attitude Pattern Profiles (Interview Form III) are analyzed by the participants with the help of the consultant. As explained in the handbook for this instrument, the profile patterns of this inventory are more meaningly than the individual scales. This information, together with the CPI information and the group interchange information, may be expected to afford new self-insight for some participants in this session. A coded profile is furnished for study of the following patterns:

A. Blind prejudice (conventional due to fear of being different)

B. Has abandoned effort to make personal choices

C. Freedom Oriented (having self-awareness and being inner-directed)

D. Acceptance Oriented (goal coping through behavior that works for acceptance by those who may accomplish goals for one; this may be emotional coping, the slide to femininity (Sontag & Kagan, 1963), or "coaster" adjustment, as special descriptions)

E. Neither practical nor planful

F. Mechanistic rather than thoughtful in behavior

G. Control Oriented (the degree of the attempt to conform to external standards)

2. This session needs to move beyond facilitation to action, in the sense of confrontation, if there is to be more than didacticism in the small group program. The researcher reminds that the TDS under study is a system for activating Student-Directed Process of education through, among other things, pressure from the teacher, on a personal concern level. Since the next small group meeting will be the last, the time to begin individually tailored pressure and encouragement would seem to be in this session.

Session Five:

This last session of the small group meetings is a

Consultant Variable in the treatment. The rationale for this holds that the consultants, as professionals, are in a better position than the researcher for creating the final group experience that best advances the objectives set forth for Treatment A. This is true because many of the particulars of the first four sessions need to be dealt with as specific phenomena. A generalized, mechanistic treatment in session five would be bound to restrict the consultant from working with specifics that are idiographic.

This session is considered to be the most challenging with respect to the role of the consultant in advancing self-direction in education, or self-development, as one may prefer to term the adjustment. Reflection upon the total experience with each individual of the group now needs to afford what insight is possible for assisting the progress of the individual's self-development.

Some consultants may choose, with a particular group, to keep the contribution coming from the participants in this session, getting a last sharing of feelings about each other and problems that exist. Other consultants may find themselves in a situation that they judge to call for statement from themselves. In any event, the only essential specified is that the objective of the session should remain the same as that specified in the larger Treatment A of the TDS-SDP course.

APPENDIX B(6)

STRUSD TREATMENT A

FOUR SMALL GROUP HISTORIES

(Personal names appearing in the following histories are fictitious.)

SMALL GROUP IV

CONDUCTED BY THE RESEARCHER

Background

B. A., Psychology & English, University of California
M. F. A., Creative Writing & Sculpture, University of Iowa

SMALL GROUP SESSIONS

Session One

After complications of getting together were worked out, we got started, late, with all six members present. While waiting for the last member, I had talked about personality theory and showed some different kinds of personality profiles. However, no one asked me to discuss the profiles of people present, so I did not go into that. We started into the exercise of sharing successes and occasions of which we were proud at some time in the past. I soon found that this group found this exercise particularly difficult. Tom in particular could not free himself sufficiently to boast. He would invite questions which sometimes led to answers revealing successes in sports and various other areas, but he could not volunteer this information, and even when given, he tended to make light of the extent of accomplishment involved in the successes that came to light.

In comparing this group to a previous similar group, a review of differences in CPI profiles offers no basis for accounting for the differences manifested with regard to ability to boast about one's past. One variable of the exercise situation might have been that there was more warm up in the previous group, in that CPI profiles of individuals present were openly discussed before the boasting began. However, reviewing the two occasions in my mind, I gamble that there were personality variables involved that either are not read by the CPI or were not read by this researcher's reading of the CPI's.

As the session continued, we went from talk of what we are proud to have done to what we are proud to be. In the latter category, we got mention of sensitivity to other people and patience (that is all I can recall). There was no mention of persistence, honesty, courage, scholarship, authenticity, or such words that would infer pride in some kind of commitment or engagement of oneself. To the contrary, focus was fixed on self concept as a receiving organism rather than a giving, creative organism. This, I feel, may be considered a valuable observation by the members of the group, and I shall share it with them for their individual reflection in regard to limitations they may be imposing upon themselves through their self concept.

Again the discussion led into what seems to call for individual study of the importance of self concept in the educational process. I intend to facilitate the students' further investigation of this area.

Session Two

Donna opened from my invitation of whether someone had something to offer. She had brought a Look magazine with an article by Leonard, author of the book, Education and

Ecstasy, that I gave her a few days ago. She said, "I thought I recognized his name." This tells me that Donna is turned on by ideas in magazines, by authors, etc., even though by her previous behavior I have noted that she is turned off by classwork. The challenge is to keep her going in her intellectual growth; she is not yet aggressive enough in the attack to push for input.

Donna then asked (with respect to her reading of the existentialism book), "What is ontogeny?" I warned the group that this word sparked me in a way that would probably make me talk too much. We then went into phylogeny, ontogeny, recapitulation, McDougall's Energies of Men, Bergson's Creative Evolution, Allport's Becoming, Ross Mooney's indices of behavioral evolution, Ann Roe's position in regard to the hierarchy of behavioral evolution and creativity, and so on. We also talked about the artist as a person living in the future, pulling in the daimonic, giving the beautiful of his feelings a material form. I tried to explain how the artist is a pioneer in man's evolution, a trail blazer with a torchlight to unknown potential.

I suggested that viewed in this way, creativity is an engagement of one's whole self. As such, it is a religious engagement as much as an artistic or other kind of involvement. And I came to the point that education embodying such a life-view would have creativity of students and teacher as a shared experience through which learning reaches to expression in concrete form.

I closed this in time to run the "caring" project. Students cared about: "my feelings," "finding what I am looking for in art--there is truth in art," "myself--doesn't everyone?" "meaning to live by--getting the meaning of life." I mentioned my children, my 7-year-old in particular because I was concerned about his circumstances, and the Vietnam war which I find a horrendous contradiction to the ideals of this country.

I entered my contribution reluctantly, but, I felt, necessarily. For me, not to participate is to be above the exchange, objective, removed in the way that instruction has been too long removed from dynamic interaction between teacher and student at a real level of what their personal lives and problems are all about. I could not keep myself out of it, and be a creative teacher in the vital sense to which I aspire. Yet, I do not wish to structure a hierarchy of worthwhile caring by entering the concepts of what the instructor cares about. What I am after is that each individual should care, CARE ABOUT SOMETHING--THAT HE CARE ENOUGH TO COMMIT HIMSELF TO ACTION IN BEHALF OF HIS CARES.

We finished by talking of variables of the caring process. Do some people care more than others? Is caring like seeing, which has to be developed, and if not developed early enough does not come about? I mentioned the sensory deprivation studies, specifically, the puppies who for lack of early experience grew up to feel no pain when jabbed with a pin. I tried to structure the problem of determinism versus free will, as students may choose to study it further in assigned reading.

This group seems to be slow in coming alive to the spirit required for a successful SDP course. I battle the notion that the teacher is on the other side, and the game is to get a good grade in the course, doing what you have to do for it and no more, just as you would not pay extra tuition "for the fun of it" when you sign up for a course.

Session Three

Edna was absent due to the "flu." We started with my telling of teacher characteristics idealized by the San Francisco Teacher Project. I mentioned also that Wilhelms found that far more was needed, to effect personality changes, than didactic instruction.

Then we discussed the "beef-up" campaign. This is the SDP structure of asserting more pressure for more and better self-directed study. The students referred specifically to a mid-quarter directive in which I called for increase of increase of self-directed study time to 12 hours a week. Students offered that they felt better about accepting it now that they were a little ways away from it. Also, Pat suggested that it was the way I handled the matter as much as the extra work that made her feel hostile. She said I didn't seem interested in how anyone felt about it. I just pushed it down their throats. I explained that my intention was to assert my authority. That I deliberately sought to introduce some tension into the work aspect of the course because too many students were comfortably relaxing in the program without doing scheduled work to which they had committed themselves. I made clear that I maintained my authority role even though, for education purposes, I was explaining my philosophy in doing what I did. There was no effective feedback, which I interpret as a lack of a definite position on the part of most students. But I did get a prediction that I would find that the students would not work harder now than they had been working.

Then we moved into the interaction session. I asked for a sharing of feeling about one another. Laura resisted "being the one that always has to get things started." But when no one else got going, she relented with, "Well, okay," and then began an insightful and open reaction to Tom. Some open and seemingly to-the-point responses followed with focus on Tom, then Patricia, then Cheryl. It was educational for me to watch the effect of being the center of attention. If the intent is to reach beneath the surface, this is a way of doing it, as I judge from the mood changes, facial expressions, and total involvement of the centers of focus. Next phenomena to note is the consequent behavioral shifts, if any, in the psycho-social dynamics. This was a good session.

Session Four

We went over the Runners' Interview Form II profiles. A student later remarked that this was the best session of the course, for him. He also said that the small group meetings were the best part of the course.

The procedure followed was to first describe the various scales. Then I explained the profile indications of (1) blind prejudice, conforming in fear of being different; (2) freedom orientation, being aware as a personality and being open and exploratory in nature; (3) a person who has abandoned effort to make personal choices; (4) a person who is acceptance oriented rather than being creatively oriented; this person spends all of his energy in getting other people to accept him and to give him status. He has no energy remaining for personal productivity for the end of forming his own world of value.

Various members discussed various aspects of their profiles. In some cases we puzzled over certain combinations that did not seem to make sense. We talked these out, trying to trace the underlying dynamics. In all cases, the persons involved showed, through their behavior, that they were getting something out of it.

I then reviewed the course, reemphasizing the initial goals of increasing individual effectiveness. I explained that now that more and more pressure was being exerted upon the students toward the end of actually increasing their effectiveness, they were likely to be reconsidering their initial goals. This was true because their level of effectiveness before the course began was an intentional design of their personality. In being pressured to change, it was as if they were being forced to destroy themselves. Then I mentioned the health, philosophical, biological, aesthetic, and educational ramifications of the growth goal commitment the course had started with. This summary took about ten minutes. I found myself tempted to ask the students to give this information in a test. It is crucial that they understand this.

I tried to apply individual pressure where I felt that a little mental turmoil might provoke some deeper involvement. In one case, the student is to be married in a few months. She is just putting in time, waiting for her life to begin when she and her boy get together. I tried to communicate that her marriage would make no real difference in her life. I suggested that a person who was a pig in level of behavioral evolution would not become a self actualizer on the day of marriage, nor the next day--that it took years of working at it.

All in all, the involvement is somewhat better since we went to the "beef-up campaign." At least, the course does not seem to have suffered from the "beefing" confrontation and related student hostility. But I must await the work reports to see what kind of effort has been generated in the last week or two.

One student of this session broke into the conversation with nostalgia for the course, in that it was soon to end. "I don't know what is going to take the place of it," she said.

Session Five

Since this was the last meeting of the group as a small group session, I made no formal plans, but allowed the discussion to free wheel. Tom and Patricia were more open and talkative than usual; in their regard, this has me feeling that if the sessions continued they would begin to derive more from them. (It might prove worthwhile to have a sliding schedule arrangement, I speculate, in which the quiet people would be kept in the small group sessions for additional sessions, perhaps forming a group from the three groups for extra sessions.)

Tom argued with me about the necessity to "care" about bringing about change. Why couldn't a person "care" not to be different. I felt that he was largely exercising his new-found freedom to confront the teacher. I liked this, even though I did not find his thinking to be very penetrating. Patricia was more open, in an assertive way, without hostility or the tension she exhibited in the previous sessions. Definitely, there was a shift to more openness and assertiveness; I don't know whether the tests will show this quantitatively, but I have observed it. However, I doubt that there has been any deep-seated shift of attitude on her part; there is no evidence of that in terms of external behavioral change in the class program.

When I confronted the group with the accusation that none of them would miss a meal for the sake of pursuing an idea, the art students (only) revolted--they started a private conversation contesting with times in which they had shorted themselves on menu in order to buy paints and other art supplies. The other students remained passive under this accusation. This makes the point that has consistently come out of the course that the art students, Laura and Donna, stand apart as higher order behavers, in Mooney's behavioral-evolution "Dynamic Leader" criteria, or Maslow's need hierarchy scale. As such, I would work with art students differently than with "regular" students, if I had enough art students for a small group exclusively of artists.

The principal discussion of the evening centered on the sensitivity aspect of the previous Wednesday whole-group meeting. Some students and I volunteered how we felt about the experience and what we came away with--what stayed in our minds after the experience.

We had done an exercise in which we touched each other's faces. I related how I reacted with a kind of fear and shock combined in touching the face of one of my students. I explained that this was a contradiction to years of communicating with students as verbal only. My teaching had been like the sound track in a motion picture. The sudden contact with flesh destroyed this abstract level of relationship. It was like cold water on a half-asleep person. I was awakened to the reality of my class as a group of living organisms. I couldn't put this together with the more extended framework of my teaching life. The incongruity remained when I left the classroom.

Others present offered similar kinds of revealment. They mentioned talking in order to cover embarrassment. All in all, students felt that this had been a worthwhile experience, if for nothing else, just to demonstrate how much we have closed ourselves away from each other in the contemporary way of life and education. They also mentioned that it was difficult to put words to why or how it was worthwhile, but that somehow they got a lot out of it. Some volunteered that it made them feel closer to the other members of the class. Others said that the class had been so close and open already that this didn't make them feel any different.

SMALL GROUP II

CONDUCTED BY CONSULTANT "B"

Background

B.S., Psychology, University of Georgia
M. Ed., Counseling, University of Georgia

SMALL GROUP SESSIONS

The group was held in the prescribed manner, with adherence to the time limits. A feeling of openness was achieved, and participation was excellent, with all persons making contributions. The group never really matured to the point of complete openness and honesty. Individuals discussed problems openly in private that they did not share with the group. During the last hour of the last session, two members who had been reserved shared at a deeper level, expressing to me an unwillingness to terminate the relationship. I concur that the experience was incomplete, but it did meet the objective of introducing a new way of relating to self and others.

I personally feel that the attempt to maintain a group somewhere between dealing with cognitive materials and personal relationships is lacking in efficiency. The format as outlined is threatening and tends to fix the level of interaction (this is also a time function problem). I would favor extending the time and publicizing the cognitive aspects of self selected academic materials to be discussed in small groups. I think that with leadership, this would evolve into a feeling level group process of self discovery. This would impose less initial threat and reward personal initiative in the desired direction. Another alternative is to change the course title to accord with what is actually done, in order to attract people who are more responsive to this technique. In my group, three members resisted self disclosure, one passively, and two actively. The remaining three displayed normal reluctance, but progressed well. All but the passive resistor made gains, in my subjective judgment. The one passive resistor was the only male in the group, which may have biased the result.

Over all, this technique was effective in eliminating many barriers to communication and stimulating critical thought with regard to life goals. This appears to be a considerable improvement over the norm.

SMALL GROUP III

CONDUCTED BY CONSULTANT "C"

Background

B. S., Public Health Education, Indiana University
M. S., Counseling and Guidance, Butler University
Ed. S., Special Education Administration, Georgia Peabody

SMALL GROUP SESSIONS

Section One

The major portion of this two hour session was devoted to the mechanics of establishing appointments for individual meetings, introductory comments, objectives of the session, methods to be employed, and appraisal evaluations (what benefits, if any, were derived from this session).

The remaining period of time was spent considering some of the subtleties of communication in relation to the spoken word, the speaker's meaning, and the listener's interpretation of the word. Dynamically, the group was tight, restrictive, protective, and wary...with only one member feeling that anything had been gained from the meeting.

Session Two

This session found the consultant "catching up" on some of the items that were not covered during the first period. The group was still stiff and protective with only one or two members contributing. That is, until the consultant introduced the concept of "caring"--the word, its meaning, and the group's interpretation of the word. Each member, one at a time, was asked to stand, face another member, and non-verbally communicate that he or she "cared" for the other. Without fail, each couple made this communication through the sensory modality of touch. Exploring the commonality, it opened the group's thoughts toward the idea of sensory deprivation, inhibitions, socially imposed values, mores, and self control. From this point forward, the group began to show cohesive signs of togetherness.

Session evaluations included such comments as: new insights, new feelings, awareness of a stranger, much relief, would not dare touch another before this experience, etc.--all generating from the non-verbal expression of caring.

Session Three

Not wishing to lose what was gained in the previous session, the consultant paired the couples for another caring experience. The carry over was established and further reinforced by a sensitivity group effort where the entire group participated in supporting one another. The group response was overwhelmingly positive. Waiting until the last portion of this session, the consultant requested that each member reflect upon two negative feelings and one positive feeling about each member of the group. As each member stood to take his due, the group was tensed and in conflict. They had, just the moment before, invested themselves in one another by showing they "cared" and were now being asked to generate negative feelings about their newly found friends.

Appraisal of this experience included comments such as: could not say something negative, felt in conflict, felt that if they had said something negative they would have betrayed their earlier commitment of caring. In all, the group responded extremely well showing strengthening bonds of togetherness, trust, and confidence. Emotions became evidenced by two members appealing to the group for help with personal problems. The group accepted the individual appeals and committed themselves to the support of these members. A side note, which is worthy of mention at this time, was that the group was no longer content with having the consultant remain separate from the group, being non-judgmental, and non-revealing. They, at this time, requested that he too become invested. In response to this request, the participating members were made aware that the consultant was extremely invested in the group, as he had committed himself not only to each member and his individual problem, but to the success of the group collectively. And he could no longer do this if the group insisted upon a change in his role.

Session Four

This session found the group reviewing the Runners' Attitude Profile as prescribed in the outline with each member generating questions about his respective profile. A little time was spent discussing the problems of the class as perceived by each of the group's members. They felt the group afforded them a true opportunity to express their feelings and thoughts, while the class, because of the larger number of members, provided a questionable, non-predictable environment which they could not trust. They felt that, although the instructor told them to speak freely, they were looked upon negatively by the instructor or other members of the class when they did so. The group continually expressed lack of trust in what was being said.

Appraisal of this session revealed that the Runner's Profile was very close to each member's thoughts of self. There was a desire to have a more extended group session (longer than two hours or a marathon), and there was a concern for the continuation of the group after the formal close of the class.

Session Five

The last session, three member missing...the consultant sensed a rather depressed attitude. Suspecting post-partum depression, the consultant set out to have each member review his or her progress through the five sessions. The members of the group expressed a feeling of concern over their personal investment in the group, stating that they felt empty and not sure. They were sure that they would accept other members in time of need, but not sure if the other members would accept them. This issue of concern was resolved as the members committed themselves to support of the others if the occasion should occur. It was agreed at this time that the group would not disband, but would reunite again in the summer or in the fall.

The session appraisal ended with expressions of giving, emotions, and closeness--with each member having given to the others and one another to each. This truly was a most rewarding exposure and a wonderful experience. In conclusion, the consultant contends that the small group sessions provided the foundation for each and all of its members to share communications with one another, be open and honest with themselves and others, express feelings without being threatened, get to know one another in a bond of mutual togetherness, and develop dependance upon others by giving of themselves. Each and all felt an investment in the group which they wished not to lose. In short, the consultant feels that the small group sessions provided an extremely important function in meeting the instructional goals of this project.

Individual Sessions

The consultant contends that the two individual sessions, of one half hour each, are ample if they are restricted and limited to the support of the individual as a student. However, the moment these restrictions or limitations are removed, a client-therapist rapport begins to develop. In this respect, little can be accomplished in the period or days given. As each realizes the existing limitations of one another's position the sessions become either deadlocked, frustrated, fruitless, or a last chance attempt to cram twenty-two years of anxiety ridden experiences into an hour's period. In all, the consultant recommends that the individual sessions be extended to one hour with five exposures or eliminated completely, adding the extra time to the group sessions.

SMALL GROUP I

CONDUCTED BY CONSULTANT "A"

Background

B. A., Psychology, Georgia Southern College
M. Ed., Education, Georgia Southern College
Ed. D., Candidate, Educational Psychology, University of Georgia

SMALL GROUP SESSIONS

Session One

Seven students were originally assigned; only five participated. When the other two did not show up after two meetings, I asked Herb to make other arrangements for allowing them to participate because I didn't want them to interfere with the dynamics already established.

The permanent group of five were: Florence Peterson, Virginia Brooks, Mary Jones, Judy Dunn, and Leigh Hunter. The initial session was conducted in the absence of Mary Jones, who was away on vacation at the time. However she fit readily into the group when she appeared at the second session.

The initial session began with the customary introductions and getting to know each other to a certain degree. None of the students actually were close friends, although two of them were in the same sorority and did know each other on a casual basis. The others had seen each other in class, but were not knowledgeable of each other. After introductions and small talk, we went into a discussion of the CPI profiles. I had met with each of the students previous to the session and gone over their profiles with them individually.

One girl, Judy Dunn, had been very upset by her profile. It had revealed a great deal of anxiety, a great lack of confidence in self, social anxiety, performance anxiety, low intelligence, and an inability to make decisions. She expressed the fact that she had never felt this way about herself. However, later in the other sessions, it did come out that she was vaguely aware of her underlying anxiety, but she never could really pin it down. I don't think she has yet. She did gain some self-understanding through the sessions, however she still has some severe problems.

Leigh Hunter did very well on the profile. Leigh has a great deal of self-confidence, is a swift thinker, very perceptive and independent in judgement and action. She does not have a desire to be a group leader or to dominate situations; however when it comes down to making a judgement, she makes her own.

The other girls were quite complimentary towards Leigh's profile, and in their complimentary verbalizations there was a certain amount of envy expressed.

Florence Peterson scored fairly low, with a high degree of anxiety. She and Judy began a natural alliance because of their profile scores and bolstered each other to a certain degree during the first session. Judy was expressive of her disappointment and frustration at having to deal with such a low profile. Florence, who had a somewhat higher self-confidence rating, but not a great deal higher, identified with Judy and took some of the pressure off. Virginia expressed a great deal of hostility to this session. Although she doesn't tend to allow herself to express this hostility outwardly, she opened up to a certain extent during the first session and expressed her disagreement, dissatisfaction, and confusion with the course.

After completing the discussion of the profiles, we moved rather swiftly on to the second part of the session, which had to do with discussing an early memory of something of which each individual was proud. This was bolstered by a general discussion of the creative personality by the consultant previous to moving into the early memories.

There wasn't any hesitancy on the part of any member of the group to express something of which they had been proud. Both early memories and recent memories were expressed.

The value of this initial session was, first of all, that some attention was turned to self-inquiry. Each individual was somewhat shaken up by having the center of attention turned to her particular profile and by being called upon to reveal something personal, to make public something of which she was proud. Secondly, the value of the session was the establishment of rapport.

Session Two

The "caring" session. This session coincidentally occurred about the time of the first interest in student protest here on campus. The group members became very involved in the session because, in their daily lives, there were public incidences of their fellow students showing that they cared about something, or at least were standing up for something.

We went into a general discussion first of what people in general care about--if there are people who care beyond the self--if, philosophically, giving of oneself to others is basically selfishly motivated because of the reward therein. We went into a discussion of big cities--newspaper accounts of people not helping other people in times of stress, times of tragedy--the indifference in the big city. We had a somewhat extended discussion on the differences between small group settings and large group settings, and comparisons were made between a small town and a large town, and a small school and a large university.

We proceeded into a discussion of this particular university and what could be done, both in the process of day by day life, and in the structure itself--the physical structure and climate structure--to complement and amplify caring and sensitivity in the students. One point that was made was the lack of behavioral settings which encouraged faculty and student interaction on an informal level. Most students said they saw professors only in classrooms and expressed the wish that their college days could be spent more meaningfully outside of class through interaction with professors on an informal and casual level--the snack bar, or whatever. Some discussion was also given to intramurals, extracurricular activities, and other programs where the students have gotten involved, with personal accounts being given. For example, Leigh Hunter talked about the soft ball team she was playing on, and how she first made the decision to join the team. She was hesitant about it at first--didn't want to be involved--didn't want to spend the time. However, she saw others having fun and she joined the team. She mentioned that she was now close friends and cared about a number of people that she would not have even known had she not joined the team.

The students finally decided that behavioral settings and programs should be created which would involve and encourage interaction between students to a greater extent and between students and faculty on an informal level. Then we moved rather swiftly to values--personal values--considering the question: what do I personally care about? Most of the girls began with the fact that they cared mainly for their own families. After a time, led by one girl, they realized that most of their lives had been rather small and self-centered, if one is to consider family as an extension of self, in a figurative sense--that they really had not gotten outside their little worlds in other words.

The session ended after this discussion, and it was quite apparent that the students were much more open with each other than before. There seemed to be an atmosphere of a cultural island pervading the session. This was a place where they could come and talk without confidence being broken, without fear of something being said here being retaliated against. In other words, it set the stage well for the next session, Session Three, where the individuals were to reveal their opinions of each other. A great deal of psychological safety came from the second session. No one felt threatened, as some had felt when they first began to discuss their profiles in the first session.

Session Three

This was the best session. It moved into discussion of each other, centering first on one person, then the next, and so on.

At first they were a bit hesitant to give totally honest feedback--that is, including criticism. Each statement was cushioned by, "I like so and so very much because she is this way and that way," and then they would get in to an honest criticism. Eventually, by the middle of the session, they were totally honest with each other, not feeling the necessity of providing for words previous to their honest evaluation. Only one girl, Judy Dunn, attacked another person out of, I think, hostility. It happened only in a short statement, and she seemed to realize what she was doing and did not continue it. This attack was based I think in part on the fact that Judy thought that they were going to attack her because of her anxiety and because of what her profile had revealed. By the end of the session, I think they were each honestly desirous of the evaluations that the others were providing. They really had never thought of themselves as others see them. They were somewhat surprised by the consequences of their behavior.

I think it was a very valuable session. There seemed to be a shift after this session into a new sense of motivation and interest in the course as a whole. They all had expressed interest at the start of the small group setting as they became rather close friends and enjoyed this cultural island. But there seemed to be a shift after Session Three in the direction of a greater awareness of finding self through one's productivity and through one's assertion of self. They revealed actually greater acceptance of self.

Session Four

In Session Four, the Runner patterns were discussed, and the emphasis here was placed upon the autonomy, and the independence of action and judgment in the creative personality. Each student had her profile to compare with the, shall we say, ideal profile of the creative person which the counselor depicted.

The shift mentioned previously after Session Three was quite evident here in Session Four. A greater desire to do what one really wanted to do became expressed in this session. Whereas in previous sessions, the tendency had been to be concerned with what others think, the tendency in this session was focusing on what you really want to do.

At the end of the session, I asked each student, between then and the next session, to make a judgment about something which involved a decision that was totally her own judgment, not influenced at all by anyone else. It could be a large decision--large judgment--or it could be a small one, based on say the feeling one gets when one looks at a painting--an evaluation of the painting without the influence of anyone else's opinion.

Session Five

This last session began with a discussion of the individual judgments or decisions that had been made over the interim between sessions. A couple of the students had finally made a decision with regard to the student protest movement and had decided to take a stand. They talked about how fearful they had been previously of joining any movement, although they had in theory agreed with the movement, because of pressure from the sorority house not to join--pressure from peer groups, from friends, against being different, against taking a stand--pressure to play it safe. Mary Jones mentioned that she had made a decision to join the movement; however, she didn't feel she had been totally honest with herself because she hadn't stood up as much as she felt she could have.

Leigh Hunter said she had made a decision, which she did not indicate she wanted to discuss. She broke down and began crying; apparently it was too close for her to open it up to the group. Since she is the type of person who would not be hesitant to do so, and as she relies heavily upon her own judgement, I think it was significant in itself that she merely said she had made the judgement and then revealed the emotion that followed.

Virginia Brooks at this point said that her judgement was that if she were going to get anything out of this course, she was going to have to do it herself. She said she realized her confusion from the beginning had been her dependence on the authority and structure of most class settings, and she just was flailing about and didn't know quite what to do on her own. Finally she began some directions for herself. She felt uneasy with them at first, but commented that after a while there was actually a comfortable feeling in the knowledge that one is doing what one wants--the knowledge that what one gets is based on what one puts out.

The rest of the session was spent in conducting a socio-drama designed by the counselor for this particular setting. All the students were concerned about problems in being a teacher--the decisions they would have to make--how they would affect student lives. They wanted answers as to what they should do in this or that situation.

We depicted a scene where one person played the teacher revealing her true personality and what she would have done in the situation, with another girl playing a rebellious young girl. Not exactly rebellious--the situation centered around integration . . . the teacher was assigning desks . . . the girl refused to sit by a colored boy. The teacher was to handle this problem. The girl said, "My father told me not to sit by a nigger, and I'm not going to." The teacher had to handle this situation immediately and in an interview session after the class with the girl. We followed that scene with a scene where the teacher discusses the problem with the father.

The teacher was really on the spot, and a lot of personality came out of it. After each scene, we had the actresses offer a soliloquy with an alter ego standing behind her probing her thinking. Then we evaluated each person's ability to handle herself in the situation of being placed on the spot. It went very well, and the girls all just expressed a great deal of gain from the sociodrama in the sense of gaining greater awareness of their future roles--how they were really going to have to be swift on their feet--prepared, autonomous, thinking, reflective people for their future occupations. The students also expressed their feeling of value in the evaluation of each person of the personality revealed during the drama.

At the end of this session, all expressed the desire that this could just continue on and on, and they hated to see it end.

APPENDIX B(7)

CURRY MODEL OF CLASS STRUCTURES

CURRY MODEL OF CLASS STRUCTURES
(The Structure of Both Experimental and Control Groups of this Study is Closed.)

		STRUCTURE				
	OPEN		OPEN-CLOSED		CLOSED	
	Locus of Control		Locus of Control		Locus of Control	
EDUCATIONAL DECISIONS	Teacher	Students	Teacher	Students	Teacher	Students
1. Number of examinations		X		X	X	
2. Type of examinations		X		X	X	
3. Departmental exam reflected in final grade		X		X	X	
4. Other criteria for assigning final grade		X	X		X	
5. Class attendance required		X		X	X	
6. EPY 304 Guest Lecture attendance required		X		X	X	
7. Teacher gives daily assignments		X		X	X	
8. Teaching-learning strategies used (lecture, discussion, A-V aids, combination, etc.)		X	X		X	
9. Amount of time spent on content areas of course		X	X		X	
10. Type of lab experiences employed		X	X		X	
11. Textbook used	X		X		X	

APPENDIX B(8)

AFFECTIVE RATINGS OF EDUCATIONAL PSYCHOLOGY

AFFECTIVE RATINGS OF EDUCATIONAL PSYCHOLOGY

INSTRUCTOR: ______________________________ HOUR: ______ TODAY'S DATE: ___________

NAME:..

In the Department of Educational Psychology, we have already taken several important steps that we hope will improve the quality of experiences in undergraduate courses. Continuous evaluation of several types will be the basis of our attempt to improve these experiences.

Today, we seek your help by giving affective ratings regarding the field of educational psychology. We want to know how you feel about this because we know that your feelings affect not only what you learn but also how you use what you learn.

We often find that students bring with them certain preconceived images abour educational psychology. An understanding of these preconceptions may be useful in planning and carrying out appropriate programs of study in this area.

On the opposite page is a list of polar-opposite adjectives by which you may rate the discipline of educational psychology. Indicate your feelings by marking the point between the polar-opposite adjectives that best represents your present feelings.

EDUCATIONAL PSYCHOLOGY

1. Interesting 1_____2_____3_____4_____5_____6_____7_____ Boring
2. Enthusiastic 1_____2_____3_____4_____5_____6_____7_____ Unenthusiastic
3. Supporting 1_____2_____3_____4_____5_____6_____7_____ Hostile
4. Trustworthy 1_____2_____3_____4_____5_____6_____7_____ Untrustworthy
5. Imaginative 1_____2_____3_____4_____5_____6_____7_____ Unimaginative
6. Safe 1_____2_____3_____4_____5_____6_____7_____ Dangerous
7. ~~Easy~~ 1_____2_____3_____4_____5_____6_____7_____ ~~Difficult~~
8. Mature 1_____2_____3_____4_____5_____6_____7_____ Immature
9. Lively 1_____2_____3_____4_____5_____6_____7_____ Lifeless
10. ~~Old~~ 1_____2_____3_____4_____5_____6_____7_____ ~~New~~
11. Useful 1_____2_____3_____4_____5_____6_____7_____ Useless
12. Fair 1_____2_____3_____4_____5_____6_____7_____ Unfair

APPENDIX C

COURSE MATERIALS

APPENDIX C(1)

COURSE INFORMATION OBJECTIVES

April 21, 1969

REVISED CHECKLIST OF INFORMATION AND SKILL OBJECTIVES FOR EPY 304

PART I. INFORMATION OBJECTIVES

A. Social Behavior

1. Teacher-pupil interaction and the nature of the learning environment itself.
2. Characteristics of the setting that facilitates the pursuit of learning.
3. Various approaches to classroom groupings and their consequences.
4. Concepts of reference groups, self-concepts, etc. and their relationships to educational achievement.
5. Correlates of social class, minority group status, economic deprivation, etc., and their consequences for educational achievement.
6. Role of punishment or aversive control in changing behavior and the variability of the effects of both positive and negative control.
7. Group dynamic factors that affect classroom learning.
8. Group dynamic factors that influence attitudes and attitude changes.
9. Methods of improving accuracy of observations of school behavior.
10. Methods of improving the accuracy of predictions of school behavior.
11. Methods of facilitating the creative problem-solving process among groups.

B. Personality and Mental Health

1. Differential effects of anxiety on performance on simple and complex tasks.
2. Criteria of sound mental health.
3. Consequences of intense and prolonged stress and the ways in which these are mediated.
4. Behavioral concept of the healthy development of interpersonal skills.
5. Signs of the developmental process going wrong and the ways of getting help for children displaying serious signs of the process having gone wrong.
6. Common defenses against anxiety and the importance of anxiety in learning and problem behavior.
7. Methods of facilitating the creative problem-solving process among individuals.

C. Development

1. Concepts of psychology of verbal behavior and its consequences for classroom communication.
2. Concepts of adolescent conflict.

3. Common strategies of children, adolescents and adults in coping with change and stress.
4. Ways of developing the mental abilities (cognitive, memory, convergent thinking, evaluation, etc.).
5. Common differences in the development of boys and girls.
6. Common differences within individuals (spottiness or unevenness in development).
7. Tremendous ranges of development within a single classroom.
8. Common predictable developmental characteristics of children and adolescents.

D. Learning

1. Concepts of reinforcement and feedback.
2. Concept of extinction.
3. Concepts of discrimination and generalization.
4. Concepts of motivation and needs.
5. Concepts of transfer.
6. Concepts of retention and forgetting.
7. Distinction between rote learning and meaningful verbal learning.
8. Concepts of skill learning.
9. Concept of concept learning.
10. Concept of creativity and problem-solving learning.
11. Limitations of punishment especially in learning new behavior.
12. Individual differences about which instruction can most effectively be varied (cognitive style, intelligence level, creativity level, need for structure, etc.).

E. Inquiry Process

1. Nature of the process of inquiry.
2. Nature of the creative process in the discovery and development of new solutions.
3. Process of establishing causal relationships.

F. Statistics

1. Basic concepts and terminology of descriptive statistics as applied to education and psychology.
2. Characteristics of the "normal curve."

G. Measurement

1. General uses of tests, such as motivating, emphasizing important instructional objectives, providing practice in skills, and guiding learning.
2. Limitations in interpreting I.Q. and other metrics of intellectual potential.
3. Advantages and disadvantages of teacher-made and standardized tests.
4. Fact that interpretation of achievement from norms is affected by ability level, cultural background, and curricular factors.

5. Fact that a raw score on a test has no meaning alone and needs some context in which it can be interpreted.
6. General principles of test construction (e.g., planning the test, preparing the test, and evaluating the test).
7. Concepts of validity, reliability, and item analysis.

PART II. SKILL OBJECTIVES

A. Social Behavior

1. Identifying and using social variables.
2. Observations of group behavior and drawing inferences from observations.
3. Diagnosis of difficulties of group functioning.
4. Increasing accuracy of observations of group behavior.
5. Increasing accuracy of predictions of group behavior.

B. Personality and Mental Health

1. Identifying and using personality differences.
2. Observation of individual behavior and drawing inferences from observations.
3. Empathy with others (imagining how they experience school situation).
4. Improving accuracy of observation of individual behavior.
5. Improving accuracy of predictions of individual behavior.
6. Reduction or increase in stress, motivation, etc. to improve mental functioning, achievement, etc.

C. Development

1. Adjusting difficulty level of curriculum tasks to development.

D. Learning

1. Programmed instruction.
2. Meaningful verbal learning, skill learning, concept and principle learning, and problem-solving.
3. Incidental and intentional learning.
4. Analyzing learning task characteristics.
5. Construction of guided, planned learning experiences.
6. Specification of operationally definable, measurable instructional objectives.
7. Prediction of the most probable consequences of various learning conditions, sequence of experiences, etc.

E. Inquiry Process

1. Determination of gaps in knowledge.
2. Determination of ways of filling gaps in knowledge.

F. Statistics

1. Interpretation of research results involving basic concepts and terminology of descriptive statistics.

G. Measurement

1. Construction of achievement tests.
2. Interpretation of achievement test scores.
3. Interpretation of diagnostic test results so as to evaluate pupil progress.
4. Interpretation of raw scores from a given set of norms.

APPENDIX C(2)

MID-TERM MODIFICATIONS OF COURSE

Directive of Educational Psychology 304, Herb Alf Instructor

MID-TERM MODIFICATIONS OF THE COURSE EXPLANATORY DIRECTIVE

I. COURSE STANDARDS

Instructor review of the quality of student performance and the progress of the course yields the following decisions designed to allow self-directed processes to achieve minimum course standards. Whereas some students are doing exemplary self-directed work, this is a directive to assist those students who are still confusing the course privilege of self-direction with broader license for laziness. The instructor realizes that the shift from fear as motivator to self-development as motivator is a radical change that is bound to confuse many students, but if each student will respect and keep the commitment made to work ten hours each week for the duration of the course, he is confident that adequate progress will result. On the other hand, it must again be reminded that a course with freedom structured into it, in the manner of this course, includes the freedom to fail. Those students who continue to look to the instructor instead of themselves for clues as to how they are doing in the course will most likely fail; for the role of the instructor in this course is merely to set the guidelines not to act as the quality policeman leading the student forward from one sure footing to the next.

II. FINAL WORK REPORTS

The final three work reports will be submitted directly to the instructor on a weekly basis. These reports will be due on Tuesday, May 12, May 19, and May 26. In order to avoid a work report for the final week of the course, these final three reports will each cover twelve hours of work. At least nine hours each week will consist of reading report. This move backwards from unrestricted ThT time is necessitated by the shockingly little library time that has been listed in work reports to date. The instructor has been pleasantly surprised by the enthusiasm of students for ThT activity as accepted course work. The ThT work is further encouraged and should be reported for credit, but not in substitute for the minimum of nine hours of reading, weekly, that is here established for the final three work reports.

III. WORK AND STUDY SYSTEM

It should not be necessary to state that reading, practice teaching, and/or any other work done for other courses is not work that is to be reported in work reports for this course, yet some reports received have entered such work done for other courses. This kind of game playing kills the teacher-student relationship of trust that is based on student commitment to work ten hours a week on this course. In general, students who do not work and report systematically, but, rather, struggle to get something on paper on the day before report time, may be sure that their reports stand apart from those of students who are meeting the responsibility of self-direction with better planning.

IV. MAKE-UP EXAMS

Students who have missed any of the examinations designed to assist self-evaluation have missed an important part of the course and will be appropriately evaluated at the end of the course; for all exams are kept along with all other course work in the individual file carried for each student. Make-ups are still possible by special arrangement. The last opportunity for make-ups will be at 7 p.m. of May 14 at the instructor's residence, 527 Oglethorpe Ave.; previous arrangement is expected.

V. PREPARATION FOR THE DEPARTMENTAL EVALUATION ON THURSDAY, MAY 28

It is reminded that the Departmental Evaluation that counts for 40% of the course grade will be held in the North and South Journalism Auditoriums on Thursday, May 28, from 7 to 9 p.m.

Each student now has a list of course objectives which will be covered in this exam. The instructor has collected various educational psychology books that are helpful in gaining knowledge of the objectives to be tested in this exam. Some students have found the Mouly text, Psychology for Effective Teaching, to be particularly helpful and have offered that careful study of the chapter summaries has served them well as a final review before the Departmental Evaluation.

VI. PREPARATION FOR THE FINAL EXAM ON MONDAY, JUNE 1

It is reminded that the final examination that counts for 10% of the course grade will be a take home exam. The precise topic will be furnished at the Friday session which will be held subsequent to the Departmental Evaluation. Student attendance at this Friday session, May 29, is particularly important; test results of the exam of the night before will be available and the entire course will be evaluated by the students and under student leadership at this time. Small-group leaders and other faculty particularly interested in the course will be invited to this session.

The final exam topic will be drawn from class and reserve-book-list treatment of evolutionary, psychological, philosophical, religious, political, and personal aspects of self-directed education. However, students are encouraged to look beyond the reserve-book-list and the class experience in their preparation for this exam, which intends to measure the scope of reflection brought to the self-directed process the student has initiated.

VII. STUDENT EVALUATION OF THE COURSE: PAPERS DUE TUESDAY, MAY 26, AND EVALUATION SESSION, FRIDAY, MAY 29.

Each student is expected to write an account of his experience in the course. This account is expected to offer negative and positive comment, in other words, to be honest. The reports will be submitted to a student committee on Tuesday, May 26, for review and possible selection for presentation, anonymously, at the Friday course evaluation session. They are not to be seen by the instructor previous to the giving of course grades.

VIII. ATTENDANCE AT FINAL EXAM

Attendance at the course final examination is required. This exam is scheduled for the regular classroom from 3:30 to 6:30 p.m. on Monday, June 1. Inventories measuring individual progress toward greater self-direction through the course experience will be given at this time, but this information will not be used in figuring courses grades. Students are invited to call back after the course is completed in order to learn of the information not received by the close of the course.

IX. COMMENDATION OF STUDENT EFFORT

The smoke and fire of the above directive intends, above all criticism and correction, to give credit for the tough, tedious, and tormenting job of study of self and change of self (which may hide its anguish in the illusive term, growth). Students of this course have a different and difficult challenge to meet, it is recognized. Here they are put in a structure that expects them to work without always giving reasons that, over the years of their school life, have come to be the motivation that makes it sensible to study -- that is, largely, the threat of being put down by the controllers of the system. Thus, I read any faltering progress toward purely self-motivated learning as a giant step forward in today's college classroom.

APPENDIX C(3)

THE STORY OF THE LIGHT

THE STORY OF THE LIGHT

There was once an author, a very wise man, who was writing of a boy who was supposed to be destined for greatness in life contribution and fulfillment.

This boy had caused his family considerable unhappiness and had eventually left home, leaving his troubles behind him, so he thought. But then he discovered that he wanted very badly to be back home, if his family would still have him. Yet it was difficult for him to ask his family if they would allow him to return. So he wrote that he would arrive on the next Wednesday evening and walk to his home. If he was still welcome his family was to have to porch light burning for him.

On the promised Wednesday this boy walked up his home street with suitcase in hand. Looking closely for the light, he approached his home. He walked, looking closely, until he was in front of his home and was certain that there was no light burning for him. So he walked on, until, suddenly, at the end of the street, the author, no longer able to endure the story issuing from his pen, shouted, "You go back home and turn on that light."

It was the author's ultimate wisdom that greatness does not grow from waiting for someone to turn on the light of love for you. Such growth begins with the decision to turn on your own light, and know, by the glow of your own commitment, that the doors of love are open to you.

Herb Alf

APPENDIX C(4)

MOONEY'S BEHAVIORAL-EVOLUTION INDICES OF CREATIVE DEVELOPMENT

CLASSIFICATION OF ITEMS[*]

in

"A PRELIMINARY LISTING OF INDICES OF CREATIVE BEHAVIOR"

* * * * *

ITEMS IN PART I - SELF-ORIENTATION, OMITTED

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ITEMS IN PART II - ORIENTATION TO OTHERS, OMITTED

* * * * *

PART III. DIRECTIONS OF DEVELOPMENT IN EVOLUTION OF BIOLOGICAL LIFE

Increasing openness

- Increasing movement: cilia, legs, fins, arms, wings; water, land, air
- Increasing perceptual sensitivity: from vague sensitivities to ears, eyes, etc.
- Increasing variation of life forms: more kinds of life in more places

Increasing centeredness

- Extension of neural system: nerve fibers, clusters, systems, central system
- Differentiation of internal organs: protoplasm, muscle, lungs, glands, brains - evolving within one functionally unifying system
- Increasing specialization of life forms: increasing complexity and refinement of plants, fishes, insects, animals - evolving within one unifying system

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[*] Mooney, 1969.

Increasing ordering in time

Lengthening of action units: action structured within units of time expanding from moment, to minutes, to hours . . . life times, generations
Increasing cognitive span: automatic reflexes, conditioning, remembering, expecting, predicting, planning
Extension of sequential integrations: more life forms fitted more frequently to more different places in tighter biological progressions

Increasing selecting for fit

Increasing complexity of need: from simple physical needs, largely instinctive, to complicated psychological needs, largely learned
Increasing range of possibilities: more different kinds of energy-forms
Increasing breadth of grasp: more movement, more perceptual sensitivity, etc.

PART IV. ILLUSTRATION OF HOW DEVELOPMENT PROCEEDS

1. Begin with simplest organism in sea; many skin openings, crude nucleus, rhythmic pressure in and out, crude capacity to reject some energy-forms that hit the walls of the organism.

2. Develops mouth as better intake opening, other openings getting smaller and more numerous; now has to distribute food from grasping through swallowing, digesting, distributing, eliminating excess; nuclear system expanding to manage sequential ordering; rhythmic pressure lengthened and internalized to cover longer sequence of steps; selecting increased by use of mouth to grasp or reject through opening or closing.

3. Develops limbs as means of getting mouth around to place where food is; increasing openness through movement; centering now required to include differentiated limbs; ordering lengthened to get limbs working ahead of mouth ahead of swallowing, etc.; selecting increased through more chance to choose selectively.

4. Develops eyes as means of finding food to which organism could move with limbs; increases scope of sensitivity, size of centeredness system, length of ordering sequence,

refinement of selection from afar. (Eyes function like arms and hands; light rays are arms, concepts are hands for grasping or rejecting.)

PART V. DIRECTIONS OF DEVELOPMENT IN EVOLUTION OF SOCIETY

Increasing *openness*

- Increasing travel and transportation: more people and more products over more of the world more frequently
- Increasing perceptual sensitivity: microscope, telescope, x-rays, radar, geiger counters, etc.
- Increasing communication: more letters, papers, magazines, books, telephones, telegraphs, radios, TVs, etc.

Increasing *centeredness*

- Increasing size of economic units: bigger business organizations, labor unions, international associations, etc.
- Increasing activity of government: more governmental interest in more areas of activity; more welfare, investigative, supervisory, etc. activities
- Increasing variety and extent of organizations: political, social, religious, economic, cultural; more committees, councils, conferences, bureaus, agencies, offices, etc.

Increasing *ordering* in time

- Increasing regulations: more government laws, more organizational rules, more business by contract, etc.
- Increasing scheduling: tighter interlocking of time schedules among related organizations and individuals; greater attention to time and timing
- Increasing management: longer echelons; more units within production systems; more steps in production process; more regulatory agencies; etc.

Increasing *selecting* for fit

- Increasing differentiation of occupations: more different kinds of jobs, each requiring its own particular fit
- Increasing use of analytic tests: to find persons to fit jobs, to find materials to fit specific economic needs, etc.

Increasing range and length of education: more formal and informal training for larger proportions of the population in more occupations and more different cultural situations

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ITEMS IN PART VI - CULTURAL BLOCKS TO
INDIVIDUAL CREATIVITY, OMITTED

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ITEMS IN PART VII - EMOTIONAL BLOCKS TO
INDIVIDUAL CREATIVITY, OMITTED

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APPENDIX D

REPRESENTATIVE SAMPLES FROM WORK REPORTS

	CLOCK TIME	HOURS
necessarily in textbooks but in life. Most of us are only in school for four years. But getting an education requires a whole life time. Few of us are ever really educated.		
3. Man's Search for Meaning (Frankl)	9:00-11:00	2HRS
COMMENTS: The second half of this very fascinating book explained Frankl's philosophy. It made me assess my life and what I've done with it. I decided that a person who is truly happy is one who has successfully learned to accept himself for what he is and what his ultimate ambitions are. This man may be wealthy or poor but if he can laugh at himself and have self-confidence, and if he is not afraid to express himself to someone else who doesn't share his views, he is successful.		
	TOTAL TIME =	9 HRS
Sunday June 21st		
1. Educational Psychology (Gibson)	1:15 - 3:15 7:30 - 5:30	3HRS

Week 2

June 22 - June 28 | 33 HOURS | CLOCK TIME | HOURS

monday June 22 | TOTAL TIME = | [illegible]

1. Educational Psychology (Gibson) | 6:00 - 8.00 | 2 HRS

2. Points for Decision (Harold Mahoney HQ796 M316p) | 1:30 - 2:30 | 1 HR

(a) "Facing Personal Problems"

COMMENTS: I learned that having inferiority complexes are natural, and only when I could not cope with my emotions would I become frustrated. Desirable ways of surmounting the problem would be a talk with a close confident or a definite attempt to erase the complex by active participation. Of course, the undesirable way is to ignore the problem.

2 How to Understand People (William Menninger HQ796 M547h) | 2:45 - 3.15
8.15 - 9:15 | 1 HR

(a) "How to be a Leader."

COMMENTS: Leaders are people who can get along with others recognizing their faults and ambitions. He gains knowledge from experience. He accepts other people and is satisfied. A leader is happy and is at peace.

CLOCK TIME HOURS

2. Existentialism in Education (Morris) 8:00-10:00 2 HRS

COMMENTS. A MOST FANTASTIC BOOK!

Never ever have I found a theory that could so fit my beliefs and questions about life. It makes me feel like I am worth something. I am an individual. However much I do or however little, there is no one there saying - "sorry, you did not fit the bill." I make my own way. There is freedom - to do absolutely nothing at all. And I pay for what I do but I know that it is of my own choosing. I make my life as I want it, and I have no one to complain to except myself.

G-R-E-A-T

Thursday June 25 TOTAL TIME =

1. Evolution of Values (C. Bouglé) 1:45-3:15 1½ HRS
HM24 B758)

COMMENTS. A discussion on the origin of values in the human soul. They come from our parents, our friends, books that we have read, and places we've been. I feel that my basic of life, but the first part was an inspiration in itself. It made me ashamed of all the times I felt sorry for myself and helped me realize how lucky I really had been.

May 9 - 4:00 - 5:00

I talked to my older sister about this course and how it is being run and the different things we have done. Having already graduated from college, she was very interested in this self-directed type course and thought it was very interesting. After we talked, she informed me that I wasn't putting forth enough effort to get the full benefit of the course, which was an inspiration to do better. She is a math teacher and we discussed her teaching methods and how mine will probably differ.

May 10 - 2:00 - 4:00

My boyfriend and I had a long talk about the things I have found out about myself since I have been in this course. For instance, my lack of assertive self assurance. Since we are planning to be married soon, anything to help us understand each other better is a step forward. He was very interested in the things I have been doing in this course and encouraged me to be active in the course. One thing we talked about was the small group meeting in which everybody informed me that I had a lack of self-confidence, which I never realized. We talked a long time about whether our relationship had had any effect on my lack of self-confidence and in the process, we revealed a lot to each other. We even questioned whether we had a healthy relationship or whether we inhibited each other's freedom and true self. It was a most meaningful discussion and since then we've been much more open with each other on similar topics.

May 11 - 8:00 - 10:00

I read an article in the May issue of Mademoiselle entitled "Finding Yourself: The Bread-and-Butter Question". It was an interview with Rollo May, a psychotherapist, on his views of different things. May feels that the central dilemma confronting modern man is a condition close to apathy. He said such things as our society is a society of alienated people, drugs are a means of communication, and that our culture will be more spiritual in the future. But the thing that interested me was that he said most young people are without any clear aims or goals and are constantly searching for causes. But there are no causes except for Vietnam, which is about dead, and race relations, which is still alive. I agree with what he said about searching for causes to be committed to and there being a lack of causes. It put into words what I felt about young people as a whole.

May 12 - 6:00 - 9:00

Lecture by Dr. Torrance on the ~~~~ creative positives of disadvantaged children. Dr. Torrance's lecture mainly consisted of going over what he has found to be the deficits and creative positives of disadvantaged children. Deficits included anti-intellectual attitude, asking few questions, fear of ridicule, and limited vocabulary. Creative positives included good ability to express feelings, enjoyment of and ability in art, music, drawing, painting, etc., and humor. He showed examples of work done by some disadvantaged children and how their potentialities can be brought out. He also showed films of summer camp at Duncan Park working with disadvantaged children. I thought the lecture was very meaningful in that it helped me to see that children aren't as dumb as they may appear and that each one has some potential if he has the right person to help bring it out.

Work Report

May 13 - 8:30 - 11:30

Read the rest of Man's Search for Meaning. Naturally the second part of the book wasn't as interesting to read, because it contained mostly theory of logotherapy. But Frankl used a lot of personal experiences to help explain this theory of logotherapy, which helped me understand it. This book really made me think a lot about my own life and the meaning I have gotten from my life. Reading about how other people have undergone this treatment and thus found meaning in their lives was a rewarding experience in itself

May 13 - 12:00 - 1:00

I thought about what I had just finished reading in Man's Search for Meaning and thought about my own life according to Frankl's terms. I tried to sort out my set of values that motivate me and give my life meaning. I also thought of how much more meaning my life could have and what I could do about it. But in the process of thinking things out, everything got confused and I questioned everything I thought I stood for.

May 15 - 7:00 - 10:30

Went to the library and read the article "Actualizing the Effective Professional Worker in Education". I wish I had read it the first week of the quarter! To me, it explained the purpose of this course being run the way it is better than anything so far. Everything suddenly became clear and I understood exactly why this course is self directed. Just the way it is explained that a teacher helps his students become effective human being and therefore teacher education should be a period of personal development said a lot. I think the article should be required to read the first week of class, because I know it helped me understand my whole purpose of learning to be a teacher.

May 14 - 9:00 -10:30

I talked to a good friend about this course to get his reaction to it. I told him how it is being run and some of the things we've done. He seemed to think any kind of sensitivity training isn't good because it puts the person on the spot, plus it didn't help any. He was also amazed at the openness of our classroom conversations. I finally convinced him that this personal growth-type course is much more meaningful than a lecture type course. But he thought it would be awfully hard for students to react favorably to this type course after having structured classroom situation for at least 12 years. After having doubts about the course, I was surprised at how I took up for it when someone argued against it.

3 hours:

This past week I have been reading all I could about the student protests and what is causing them. I didn't even know enough about it to carry on an intelligent conversation, so I read newspapers to educate myself a little better on the subject. In this way, I felt that I was bettering myself as a person.

APPENDIX E

STUDENT HISTORIES

The full story of student histories is not told with the following records, but it does seem that a fairly representative sample was obtained in the six histories which follow.

Names and identifying details have been changed to protect privacy.

STUDENT HISTORY: NANCY BURKE

First Entry

My first memory of Nancy is with her brow wrinkled as I told her about STRUSD Education. She came in heads up, in knowledge of, and ready for a different kind of learning experience. Her CPI was consistent with my first impression. There was an elevation on all scales except Well Being and Responsibility, which were but a half S.D. under norm, and Femininity, which was 1 S.D. under norm. Here, I thought, is a girl busy with education and being a good citizen, but not too happy in her own personal circumstances and yet not doing as much for herself as for other people.

In the early sessions, Nancy revealed involvement with a social action program for disadvantaged people (blacks), and she soon began trying to recruit class members to help in this work.

Last week she appeared in new cowboy boots and western attire. From my notations, this kind of exploration with differentness and her involvement in social action programs may mean that she is on her way to becoming an unusually well-integrated and value-oriented personality of high order of adjustment, in Franklian, Mooney, or Maslow terms. To know how I may support her growth, I must talk with her personally. Her first consultation is coming up in a day or two.

Offhand, I would note that her biggest departure from a high-creative profile is in her elevation on the Socialization and Good Impression scales: it may be that she will want to reweigh the extent to which she lacks aggression in pursuing her personal welfare and indulgence. Also, the low Femininity scale may have a significant history and involve some rethinking for her. I expect to step lightly and look to her for guidance as to what she wants from me.

Second Entry

Following her first consultation, Nancy offered that she was very glad that she had signed up for this course, and she ran back over the decision-making process that brought her to the course. My approach was to encourage her to deeper analysis of the decisions she claims to have made. As a sophomore, she gives the impression of having decided to go into social work. I visited with her about social work, social workers, etc., as she knew them from her last summer's work. I suggested she might make a project of becoming more familiar with the role of this life commitment; we talked of means for doing this. I asked if she felt she had to decide now, or if she just knew she wanted to be a social worker.

At one point she offered that her mother and sister were artists and she was not good at that sort of thing; she was better at working with people. The setting for the statement, and the fluster with which she came forth with it, made me wonder how much her mother and sister, as artists, had to do with her wanting another commitment. It was almost as if she were striking a course which would prove her of equal worth.

At that point, I was not at all sure she wanted social work for what she saw herself accomplishing for others. This was just a feeling with me, but it caused me to direct our conversation into what was accomplished through social work. We talked about the nature of the era, government policies, ideal ways of life, individual dignity, the need to sometimes be hardboiled in the face of suffering in order to promote a larger good that may be less immediate, and that sort of thing.

She had specifically mentioned an interest in working with VISTA. We visited about the problem of blacks accepting the help of whites, about the black power movement, white extremists, etc. I made some bold statements as to how I, personally, no longer considered this problem to be my revolution, but I did, nevertheless, feel that blacks were going to become increasingly more violent; that the violent approach would be fully exploited with all of its accompanying bloodshed before an era of truly comprehensive realization of a better life for the disadvantaged would begin. I expressed this as my intellectual position, which brought me to my role in which I searched for direction in education, working for the time when the political climate was ready to begin the changes I wanted. All of this, I tried to make clear, was not my way of saying, "be like me." Rather it was my way of asking her how deeply she had examined her good intentions and her particular role in the schema of life she structured.

We talked about being value integrated. About artists. Art. Teaching. The value of searching and expressing values. The importance of testament for values. I asked her how she saw herself in this respect. How she felt about the social work perspective of not making value judgments, keeping one's values out of their work--as opposed to the artist's commitment to values, to work that blossoms with the artist's particular values.

We talked in this kind of vein, ambling, thrusting through the veneers of achievement orientation. In other words, we had a lively intellectual conversation. I went the extra mile to do this, because I felt that Nancy was not only ready for it, but in need of this kind of deep-cutting, thought-provoking interchange.

During the session, I gave Nancy an altar candle

I had on my desk. I told her of how I had given such candles to my students when I perceived that they were burning their own light. This related to a story about a boy who came home in hopes of finding a light burning for him on the front porch of his parents' home, but he learned that he would have to burn his own light. I use this story because, in my experience, some students grasp the concept of choosing more easily in the existential viewpoint when they come to it with the assistance of this symbolism of a person lighting and burning his own lamp. One student in a previous class told me that in reading Existentialism in Education a second time, after having her own candle burning on her desk, the whole viewpoint was clear to her.

I told Nancy that I felt that the importance of symbolism in profound human experiences told of the richness that could be brought to academic relations with such symbolism. I said that I, personally, burn a similar candle on my desk sometimes while I work. The flame gives me a feeling of community with the lamp burners, in the sense of the story of the light.

Two days after the consultation, I asked Nancy how she was reacting to our talk. I got a sense of genuine appreciation for the concern I was showing, and I got a sense of thinking processes in action, continuing beyond the jolts and broad sweeps of our exchange. She felt that the talk had been what she had needed for a long time. It was making her think through some of her ideas that she hadn't looked at very carefully.

I must note the possibility that Nancy is not the self-actualizer that she shows herself to be at age 19. Her life style may be as much a disciplined pattern of behavior ruled by the approval-disapproval power of her family. Her father holds a prestigious university position, and her family is made up of individuals of whom she speaks with high regard for their attitudes and attainments. Her life style speaks of pressure being felt to have her measure up favorably by the standards of the family circle. This may energize her achievement drive.

I asked her if we had covered too much, cut apart too much without putting anything back together. Of course this could be expected to bring an assurance of "no," which it did. Yet, I got the sense of (1) genuine feeling that the jolts and the broad sweep together had activated a deeper kind of self-direction process than she had going before, and (2) that my concern in asking about how she was taking our talk was genuinely important to her.

It could be that Nancy needs a relaxation of demands from the outer world in order to grow to a truly self-actualizing level of life engagement. In her case, I especially feel the applicability of Erikson's recommendation of a psychological moratorium for the purpose of developing self identity.

Third Entry

Nancy stayed to talk after the small group session. She told of a boy friend in the hospital. She read the telegram she had sent him, to hear if I thought it sounded right, the touch of humor, yet pathos. She said she'd been thinking a lot since our talk. I asked if she had ever read Erikson on youth needing time to travel and explore, without demands upon them. I explained that I would like to gain her opinion on Erikson's ideas, if she found time to look into it. She said she would.

The subject of drinking came up. This brought on an exchange in which she said that marijuana is no different, only illegal. I asked her if she had tried marijuana. She said she had tried it two or three times, but she was not doing it anymore. She figured that since she doesn't drink, she wouldn't do that either. We talked about drugs. How much of a problem they are. She said that she wondered if it might not just be a fad. I mentioned my film work about addicts, and what I knew of rate of return to addiction.

The talk moved on to another classmate. She offered observations that showed good sensitivity to people. We talked about her family; she said she really is free, does not feel under their pressure. I asked what she would do if suddenly they were no longer a part of her life. She said that she had thought about that, and she felt that it wouldn't make any difference in regard to what she would do, that she really was her own person.

Fourth Entry

(Following session 22 out of 30 sessions.) Nancy had the "flu," so she has not been attending, but she is back now. In the small group today, we discussed Nancy's Runners' attitude scale. She was high in Social Anxiety and did not profile as the highly creative person she appears to be. Her profile showed middle range experimental and intuitive orientation. We traced her high Social Anxiety down to concern about acceptance as a woman and as a career person at the same time. We ended with the speculation that she might be resisting conventional femininity patterns and as a consequence be holding herself back in both creative and emotional development. She, of course, worked this all out with us. I suppose she is thinking all this over. It will be interesting to get her reaction in a few days. One student mentioned that Nancy seems to get real concerned about profile indications that do not fit perfectly with her preconceived self concept.

Fifth Entry

Nancy is full of internal glowing this week. She seems to have worked her way out of the depression of breaking with her boyfriend of long standing. I sense that she is beginning to look to the VISTA experience expectantly; it begins in a few months. As I understand her now, this course is largely supporting the internal direction she already has in progress. She says that she has been getting a lot out of the course. Perhaps this "lot" is a kind of GO for what she has in mind anyway.

I would not be surprised if post-course quantitative measurements do not show a noticeable change in her profile. I am waiting to see and learn. In both the CPI and the Runners, her profile was already above the mean on the pre-course evaluations. However, she has done a lot of rethinking and she has applied herself to the course experience. We shall see.

Last Entry

I feel that Nancy ends the course in a more questioning frame of mind with regard to her previous decisions. I see her as having gained an openness to new viewpoints and new confidence in her own "sense of destiny." Her recent acceptance by VISTA for a year of service in a poverty program has her enthusiastic.

I feel that the course has made Nancy more alert to some of the forces influencing her self direction. The book Existentialism in Education seemed to be particularly important to her. As she read the book, she wrote in her reports, "Great! This is what I've been thinking, and here it is in print, all said beautifully!"

NANCY BURKE'S COURSE EVALUATION

This course has been a totally unique one for me--having both its strong points and weak points though as any.

The weak points are obvious in my eyes. First of all I feel the quarter is too short to most effectively install a self-directed program. I do not feel that students were self motivated to do work on our own that was not directly assigned. I am sure, in all fairness, though, that there are exceptions to the rule.

I also felt that the book Existentialism in Education might be discussed in greater depth before the test (maybe students could write out questions they have on the book and these could be discussed). I feel that this book ought to be continued simply because it has some exciting concepts that provoke thought and rarely does one read books that stimulate questionning that this seemed to do. If it did not--I honestly feel that it was the reader's fault.

I believe that each week from the very beginning the class should meet in the allotted time of two hours, two nights a week, and then in the small group another day. Three hour sessions are physically exhausting and even though I realize it was done this quarter because of lost time, I feel it can be avoided in the future.

Strong points of the course I feel are - being able to read Gibson on our own so as to devote classtime to more interesting growthful subjects. I would love to see more outside speakers come earlier in the course -- possibly one or two a week at one session and then use the other session for other purposes. The idea of asking completely different individuals (in ideas, beliefs) and yet caring individuals is wonderful, and I feel all of us gained a tremendous amount in this way.

Somehow I feel that the first two weeks of the quarter were wasted. If the first session or two could be made particularly interesting, then take tests, maybe there would be a feeling of connection, but no one had a feeling of belonging or direction at first and that is the most crucial period.

Interest tests are really great but I wonder about taking every one of them we did -- somehow I feel we should have and then again I don't. I don't know. I think the sample test at the beginning of the Dept. evaluation should not be given. This would also save some time.

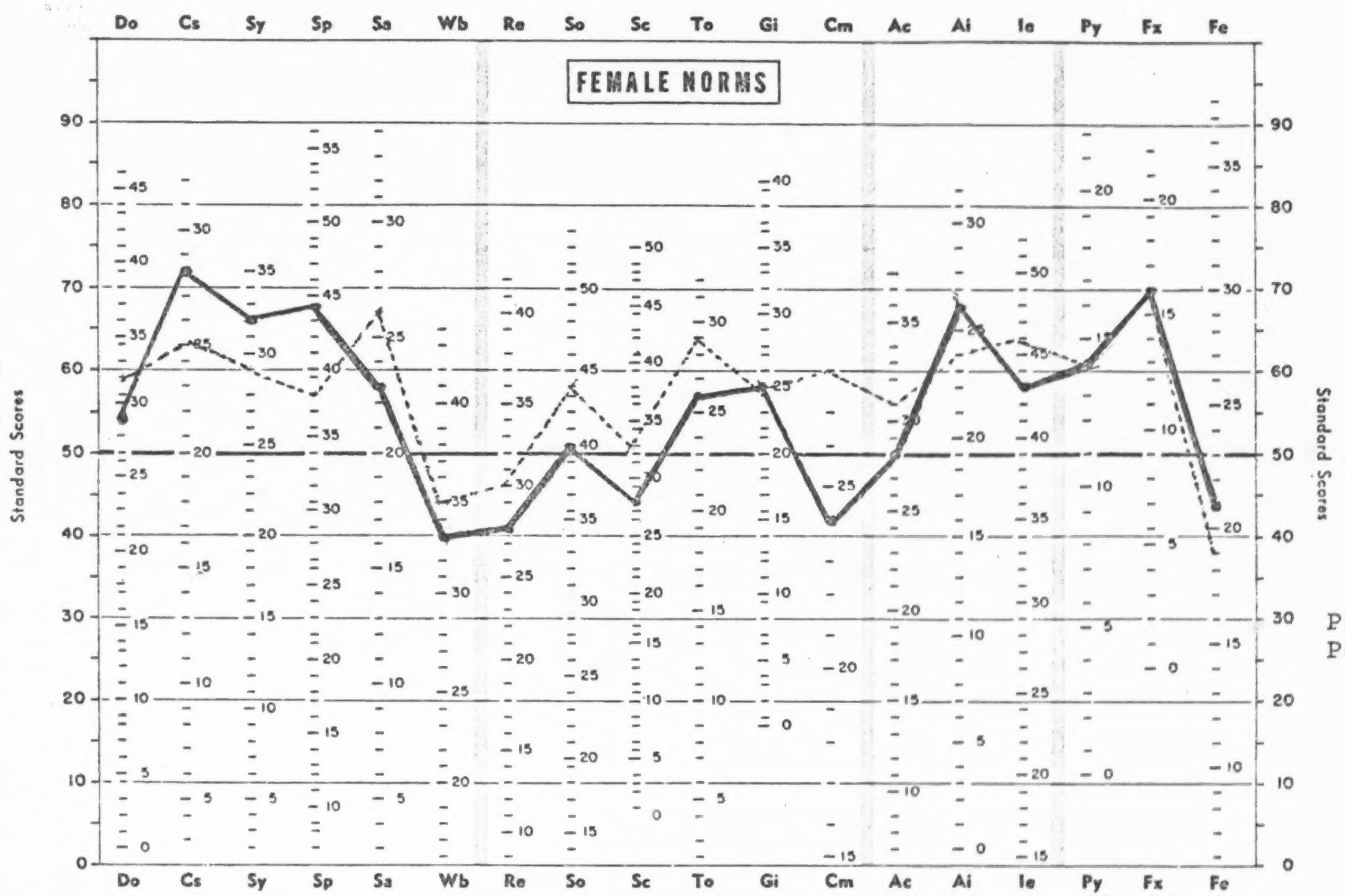
I liked our discussions on ourselves and other people as far as spontaneous reactions. One learns a great deal about oneself this way.

PROFILE SHEET FOR THE *California Psychological Inventory*: FEMALE

Name NANCY BURKE Age 19 Date Tested

Other Information

Notes:



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POST:	29	28	32	44	23	33	28	40	28	26	25	24	28	26	43	14	16	21

Female Norms

Key

Pre-course test:------

Post-course test:———

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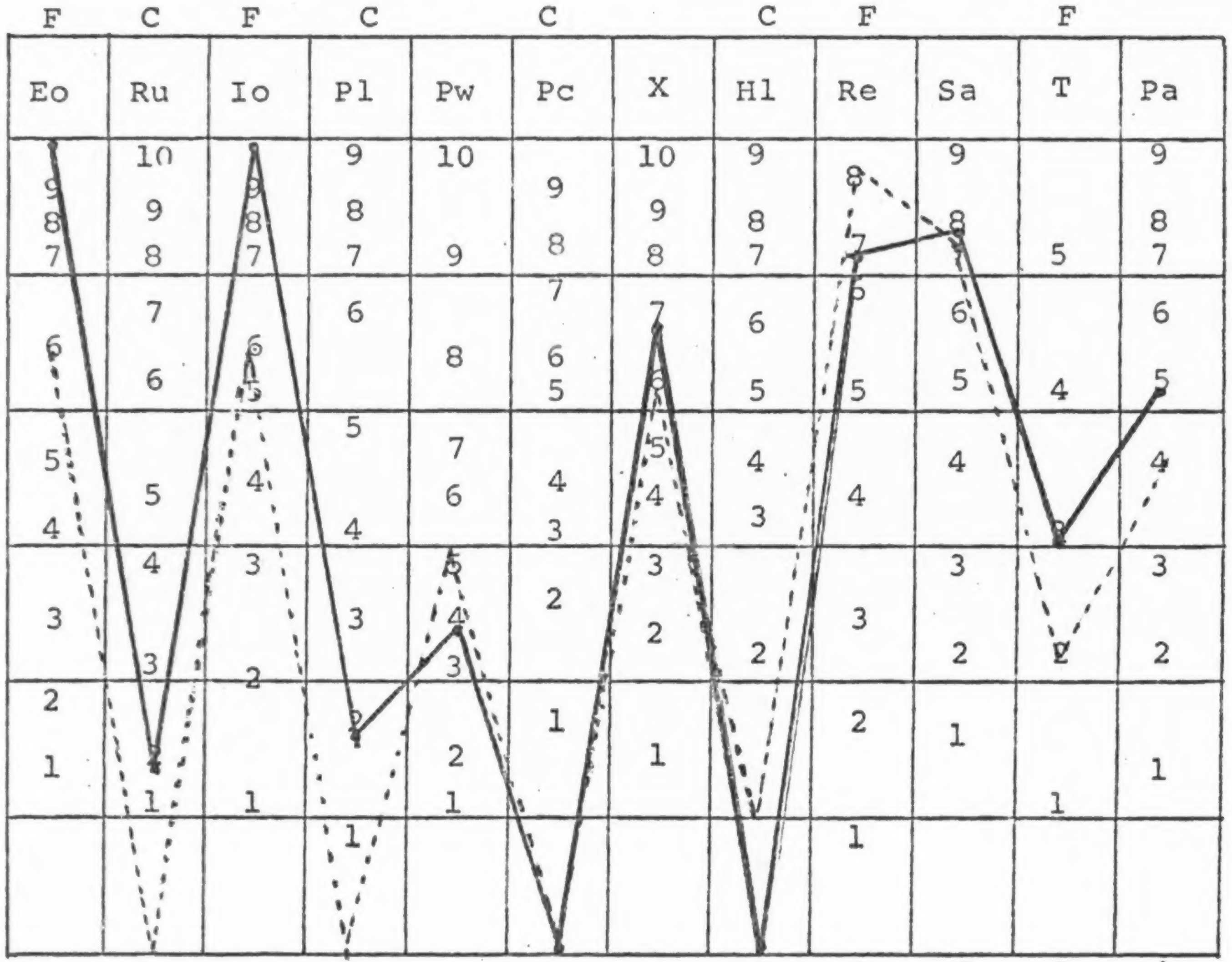
Name NANCY BURKE

Date ____________

RUNNER STUDIES OF ATTITUDE PATTERNS
INTERVIEW FORM III

Eo: Experimental Orientation
Io: Intuitive Orientation
Ru: Emphasis on Rules and Tradition
Pl: Practical Planfulness
Pw: Desire for Power and Authority
Pc: Passive Compliance
X: Extroversiveness
Hl: Hostility and Blamefulness
Re: Resistance to Social Pressure
Sa: Social Anxiety
T: Pleasure in Tool-Implemented Hand Skills
Pa: Performance Anxiety



	Eo	Ru	Io	Pl	Pw	Pc	X	Hl	Re	Sa	T	Pa
PRE:	6	0	6	0	5	0	6	1	8	7	2	4
POST:	10	2	10	2	4	0	7	0	7	8	3	5

Key

F = Freedom Orientation
C = Control Orientation
Pre-course test = -----
Post-course test = ——

STUDENT HISTORY: ALICE BARNETTE

First Entry

Alice is a quiet student, with the ambition to become an elementary school teacher. She has not chosen to offer any contribution to the discussions of the first class sessions. She received the lowest score in a class of 17 on the first achievement test given for self-evaluation, but this score was still in the 38th percentile.

Study of her CPI reveals a profile that would seem to make this level of accomplishment unlikely. Her Capacity for Status is 4 1/2 S.D. below the norm. Only on Femininity and Flexibility do her scales rise to the norm. Most scales are depressed between 1 and 2 S.D. Whereas I have seen students with some highly depressed scales make straight A averages, with those students there were some strengths to account for the capacity of achievement. Here there are no strong scales; the best indication is normal Flexibility. I cannot help but wonder about the kind of history that would yield such a profile. As I remind myself that I am not reading this girl's potenial but her life engagement as of this time in the CPI, I am aware of the untapped potential imprisoned by the low profile. The big question is how can she help herself to raise her Self Ascendancy, Socialization, and Intellectual scales? This is my challenge of attempted support for her, too.

In helping her to become a more soundly functioning teacher of tomorrow, I know that it is doubly important for her to succeed. Firstly, what happens for Alice can make a difference for her personally. Secondly, she may gain the ability to help other people with similarly depressed personalities. My limited work with the disadvantaged has been sufficient for me to speculate that many people of the South are so handicapped. Alice happens to be black. If this course will be of value to her, it will give her direct experiences with which she can help people with similar problems.

I must wait and see what will develop for Alice through our consultations, the small group confrontations, the special assignments, the larger class experiences, and the particular developmental experience that Alice chooses. I can already see that there will not be enough time for the kind of development that could happen for Alice. Hopefully, we may start a direction in motion, however, and start strengths growing on their own beyond the extent of the one-quarter course.

Second Entry

I have been encouraged by Alice's course engagement. She has been surprisingly well-accepted in the small group meeting. She has a nice sense of humor. Her contribution to "the first thing of which I was proud" exercise was that she was first proud when she discovered that she could whistle. She had thought she had a whistle in her throat, and she was very proud of it.

Alice is soft and sensitive. She is originally from Maryland, where, she feels, she did not suffer from racial prejudice. Her family moved to Georgia about 4 years ago. She feels that her education in Georgia has been handicapped by the segregated school she attended as a black.

Alice is big and plump. A part of her low energy level may relate to her heavy weight.

Alice is open and outgoing, even though she is low in aggressiveness of expression. I have been considering a class project of psychodrama, as an exercise in interaction, and I wondered how Alice would like a program of black-white confrontation structured into a psychodrama format. During her consultation, I put the question to her, making sure to point out that I wasn't trying to direct her, but was offering my support for this plan if she cared to do it.

In her delicate manner, she turned her head a little, wrinkled her forehead, and gave the idea thought. Then she said, "Yes, I would like to do that."

I gave her a sample of psychodrama format and told her to think about a situation we could structure. I offered the possibility of bringing Nancy into the project since I had also discussed psychodrama with her. She was agreeable, perhaps too agreeable.

In the small group, Alice said (in the "most proud" exercise) that she is most proud of being "easy to please" and "accepting." Was this her true feeling? Or was it a learned, appropriate response to a white teacher's questioning of her feelings?

At the time, I reacted by telling her that I hoped that I would know her at such time as she felt proud of being difficult to please. Then I told her, in the group, about the positive feeling I had toward her (as detailed above), and I said with voice raised, "Who in the hell are these people who are so important that you should be proud of being easily pleased by them? What about you? What is so important about making life easy for them? Why shouldn't they worry about whether or not they are pleasing you?"

Alice just listened to all this without responding. Later, at her consultation, I told her that I hoped she understood that my rough talk had been directed at the world that had put her down, not toward her. I told her that I felt she could gain a lot by forcing herself to speak up in class, since she had good ideas, and needed to get more confidence in sharing them with other people. I asked if it would make a difference if she understood that she would never be criticized for what she said. She said it would, and I promised to always support her, as a friend, appreciating her regardless of what she said. We came to an understanding which is supposed to result in her participating more in the sessions.

Third Entry

It is apparent how different student histories make for difference in development. Alice does not have behavioral models that offer her direction and aspiration, as Nancy does. Nancy's life is rich with intellectual attainment of people she aspires to join. Nancy's values require her to strive for self-development. Alice has values which do not spark corresponding energy. In attempting to serve the affective education of Alice, I do not intend to support the values that disadvantage her. For example, I cannot approve of her pride in being easy to please. I must assist her in search for values that may inspire her to more dynamic life engagement.

This education approach establishes a framework that defines development as that process associated with a more effective, creative life-engagement. Is such education a violation of Alice's rights? It would seem that Alice, in coming to school, is demonstrating that she does not consider her development to be sufficient for her life. We cannot do justice to such announced interest in growth without disturbing the schema of values that defined the behavioral dynamics previous to the school experience.

Herbert Read discusses the error of attempting education without exploration of values (Read, 1949). Suffice it here to say that it is not the exploration of values in educational program, but the intent of the exploration, that is an issue of human rights. If the intent is to facilitate Alice's self-direction, her freedom may be increased by value confrontation, I am going to assume. So I am going to challenge Alice's values.

I feel that I need to move past the self-concept tangent that is my present focus with Alice. I need to relate to her world of ideas as well as to her world of social relations. I will try to encourage intellectual contribution from Alice in course sessions.

Fourth Entry

Alice has not yet volunteered a plan for the psychodrama confrontation.

Fifth Entry

(After 22 of 30 sessions.) Alice missed her consultation appointment. She called up, excused herself from the appointment, but said she would come to class, which she did. On the phone, the TV was blaring in the background. In my mind I saw a larger scene of disadvantage which might apply here. As I envisioned the miseducation of Alice's background, it seemed a miracle that she was in college in the first place. Who had encouraged her to come? Why? This was a story I ought to know more about, because I was starting from that point in trying to encourage further self direction.

Will she show gain from this course? I consider her a real challenge, perhaps because she symbolizes the many blacks of the disadvantaged South. What works for her is important as a tool for others. I regret that the course that I tried to organize last year for personalities like hers couldn't get funding.

Sixth Entry

Through Alice's arrangement, two black liberators visited a total-group session. The blacks represented their position very well, but they got no support from Alice. She remained the smiling, lovable black girl who offends no one and is easy to please. But she recently told me that she wants to teach, "to help my people." I have tried to share my perspective of how important she can be to our time and to "her people" as a future educator. I am anxious to see her post-test results. It may be that she has made more gains than I recognize.

Last Entry

By Alice's final behavior, I am led to believe that she is more motivated now, and that she has more of a sense of personal worth and personal responsibility. It may be that the course came too late and ran too short to make a real difference. I will be influenced by her course evaluation in this regard.

Alice is of such an easy-going nature at this point that it is difficult for me to see her as a committed, eager, and busy individual, who is engaged with value fulfillment. But I will always remember her saying, "I want to help my people. That's one of the reasons I'm going to college." Suddenly she was black to me, not only in color but in spirit. I saw, and I liked what I saw. I hope very much that this course has helped Alice on her way to leadership in the black community.

ALICE BARNETTE'S COURSE EVALUATION

I have enjoyed Ed. Psy. this quarter and it won't be a course that I will soon forget.

Sometimes I thought some of the things we did were useless, but I see now they were all for the help of bettering ourselves as an individual.

I think Mr. Alf is a great person and a wonderful teacher. He is open-minded. He doesn't scorn anyone for their beliefs, even though he may not agree with all of them, but he accepts that person as an individual.

I really got to think about myself and why I always doubted myself and I came to the conclusion that as a child I was sort of laughed at because I was always larger than the other kids and made me have a low self-concept of myself and wondering whether people would accept me.

This course was centered around the fact that everyone in there is an individual, and they are different and this makes them unique.

This course has made me become more aware of myself as an individual and that I have a purpose in life and I should try to fulfill it.

PROFILE SHEET FOR THE *California Psychological Inventory*: FEMALE

Name ALICE BARNETTE Age ______ Date Tested ______

Other Information ______

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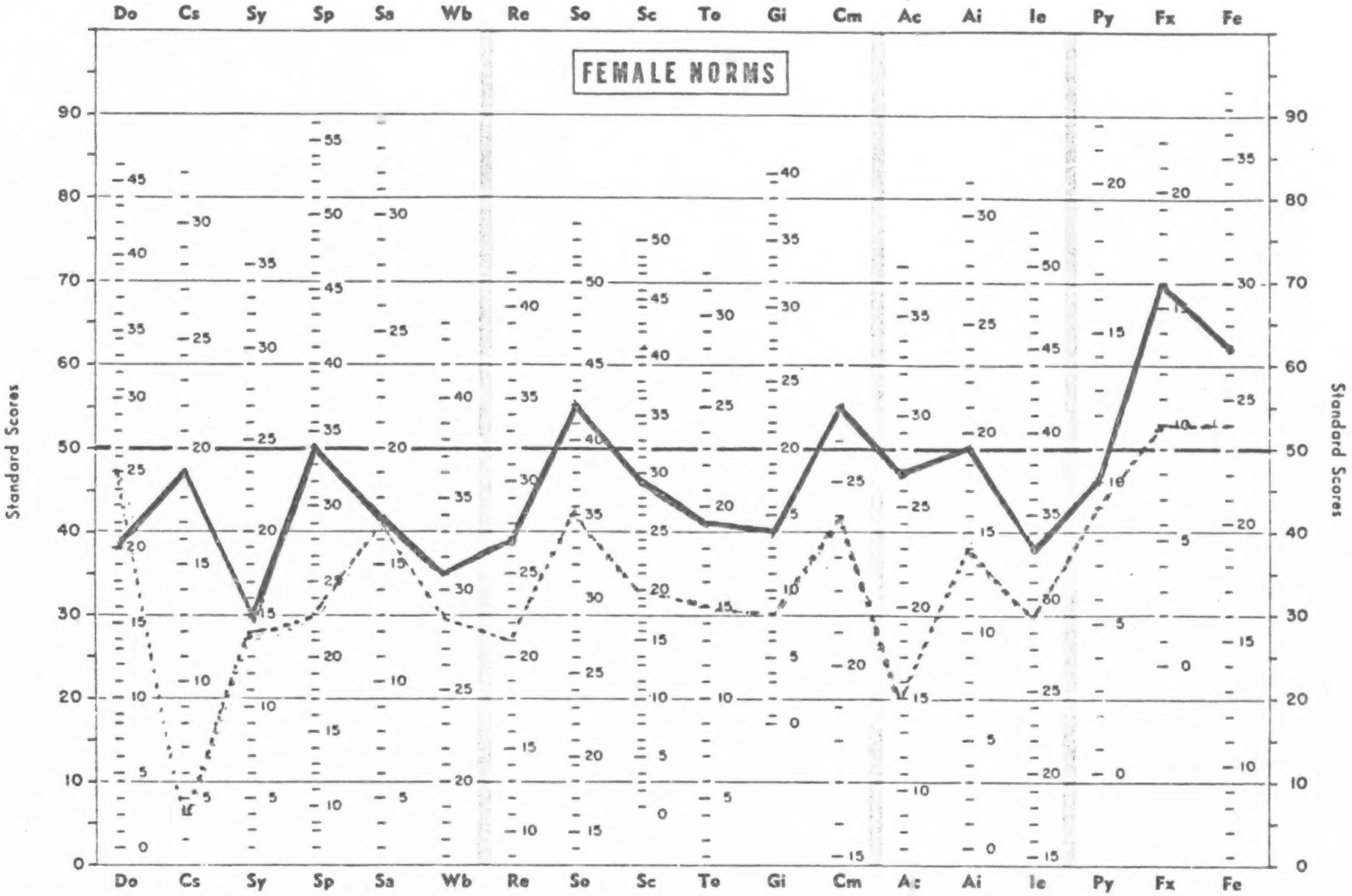

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PRE:	25	4	14	23	17	28	21	35	20	15	8	24	15	14	29	9	10	24
POST:	20	19	15	34	17	31	27	42	29	19	14	27	27	19	33	10	16	27

Female Norms

Key

Pre-course test:-----

Post-course test:——

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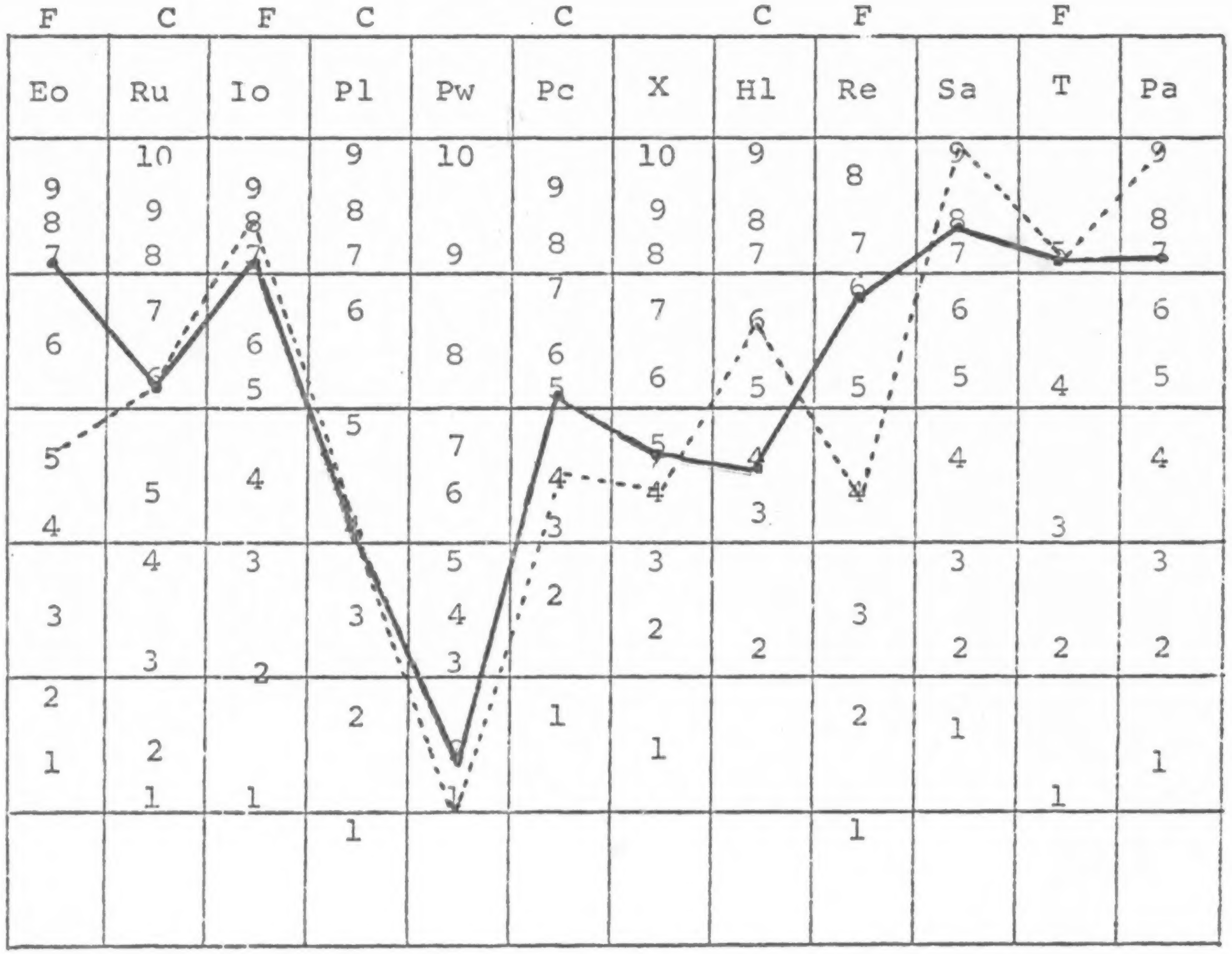
Name ALICE BARNETTE

Date

RUNNER STUDIES OF ATTITUDE PATTERNS
INTERVIEW FORM III

Eo: Experimental Orientation
Io: Intuitive Orientation
Ru: Emphasis on Rules and Tradition
Pl: Practical Planfulness
Pw: Desire for Power and Authority
Pc: Passive Compliance
X: Extroversiveness
Hl: Hostility and Blamefulness
Re: Resistance to Social Pressure
Sa: Social Anxiety
T: Pleasure in Tool-Implemented Hand Skills
Pa: Performance Anxiety



	Eo	Ru	Io	Pl	Pw	Pc	X	Hl	Re	Sa	T	Pa
PRE:	5	6	8	4	1	4	4	6	4	9	5	9
POST:	7	6	7	4	2	5	5	4	6	8	5	7

Key

F = Freedom Orientation
C = Control Orientation
Pre-course test =-----
Post-course test =——

STUDENT HISTORY: ROY STOKES

First Entry

Roy never spoke during the opening sessions of the class, except when he was specifically asked a question. His CPI pre-test measures of poise, ascendancy, and self-assurance were between one and two standard deviations below the mean. Good Impression was 2 S.D. below the mean, indicating inhibited, aloof, resentful, self-centered tendencies. At the point at which each student was individually asked to declare whether or not he would commit himself to the self-directed process to see what would happen, Roy was the only student who failed to commit himself. He said that he was "still suspicious."

When the Gibson programmed text test for self evaluation of course content learned was given, Roy finished first, by a considerable extent of time. I scored his paper immediately and asked if he would like to see which answers he got wrong. He said that he had other plans, if he could leave. He explained, "I know about which ones I missed anyway." I allowed him to leave.

I was concerned by his portrayal of indifference. It struck me that I was going to have to work very hard to establish an authentic relationship with Roy.

At the end of the first four weeks of the course, before I had begun the individual consultations, I felt that

Roy was the most distant student in the class. Yet I felt that Roy's independent nature might be coupled with some exceptional intellectual and creative abilities that could make him one of the most gifted students of the class. When random selection gave me his name for this history, I was pleased, for I find him intriguing. His gaze is intense, deep, distrustful. His manner is quiet but not conforming. He imparts an air of having private understanding that he feels is too superior to his class fellows to attempt communication, and yet he imparts an unsureness.

Roy imparts potential giftedness, but it seems that he has some very real handicaps in effectively utilizing his talents at this time. I hope that the self-help process can help him better engage his potential.

Second Entry

I had my first consultation with Roy today. I asked him how he felt about how the class was going, and he said he felt better about it since the first small group session. He said, "I enjoyed that." Since the small group had been very open in discussing one another's problems, it was encouraging to hear that he was not defensive about the experience.

Roy was talkative in his consultation. I remember reflecting upon how much more talkative he was with me alone than when the class was gathered. He seemed relaxed with

with me, but he spoke hurriedly. He said that he really didn't know what he wanted to do. He needed to get a job in that his sister would be starting college next year, and his folks couldn't put two people through college at the same time--though he was paying about a third of his own way.

Roy said that he had very recently decided to go into teaching of high school English, at least for a while, to get some experience. This is what had brought him to the Ed. Psych. course.

I told Roy that he seemed like a person with broad creative talents. He returned that he did love music and that he played an electric guitar in a dance band, making extra money upon occasion.

I asked Roy why he hadn't bothered to look up his errors when he took the Gibson test. He said he didn't know. I explained that he was different from other class members in that everyone else had studied their errors. He said that he was careless like this about many things. I asked him to work at discovering why.

Third Entry

In class, Roy volunteered that his cares in recent days had centered about his potential. He said that since his consultation and since reading the existentialism book, he had been doing a lot of thinking about himself in this respect.

Fourth Entry

(Written following session 22 out of 30 one hour and 40 minute sessions.) Roy told of talking to a friend for four hours in regard to personality improvement. Also, he and a girl talked through a Saturday night date about the dynamics of their relationship. He has announced to these people that he is on a program to improve his personality. So, the intent to grow seems to be established.

To date, his interaction with the group is not much different than when he first joined the class. I feel that if I could encourage or provoke him into interaction he might become more social. I do notice him opening up more in personal conversation with me and in the small group meetings.

Fifth Entry

Roy has returned from his absences, which he explains to be due to headaches. His methods may be means of keeping himself aloof from the action phase of the course. My judgement holds that he took as much of the personality treatment as he wanted at this time and then found ways to escape the rest. I don't know where this leaves him. I know he feels better about his potential. However, he has not announced any kind of change in his action plans, as of his last consultation. He still hopes to return to his

Georgia home-town and teach there as a high school teacher "to get some experience" for a year or two. In our last talk, we discussed the advisability of exploration beyond his total Georgia background. Roy expressed little enthusiasm for such exploration.

Roy said, in his last consultation, that he had resisted the course method at first, but then had gotten into it, and finally he had gotten a lot out of it and liked this way of going about things. However, this statement is not consistent with his recent poor attendance. Who am I to say whether or not he was really ill?

Last Entry

Roy seemed to resist the class experience more than any other class member. He missed three of the last sessions of the course. He offered that he had been feeling ill, but not ill enough to check in with student health. Regardless of his health, one could sense the alienation in his attitude and lack of relationship with other students. He looked for me in my office and didn't find me on the day of the student evaluation-of-the-course program. Then he did not attend the oral evaluation.

My feeling is that Roy has deep-seated problems that are handicapping him as a superior young scholar and potentially creative person. I shall ask him, along with the rest of the class, to consider whether this course has gone far enough; that is, whether psychological counseling might be an advisable experience as a way of further working with some of the unfinished involvements of the course. This course did not last long enough to assist Roy to the extent that he deserves concern and encouragement.

ROY STOKES' COURSE EVALUATION

My reactions to this course are much more favorable now than they were during the first month of the course. Until the small group sessions began, I felt ill at ease during the class sessions and questioned some of the techniques and purposes the instructor used.

But when the small group sessions began, I felt more comfortable in the small group. Also, the consultations with the instructor served to boost my self concept and alter my self image. This was aided by some personal experiences which led to a decision in early February to become a better person.

I may not have improved my creativity or expanded my horizons or raised my goals, but I feel I am a nicer and possibly more outgoing person than I was when I entered the course.

PROFILE SHEET FOR THE *California Psychological Inventory*: MALE

Name ROY STOKES Age ______ Date Tested ______

Other Information ______

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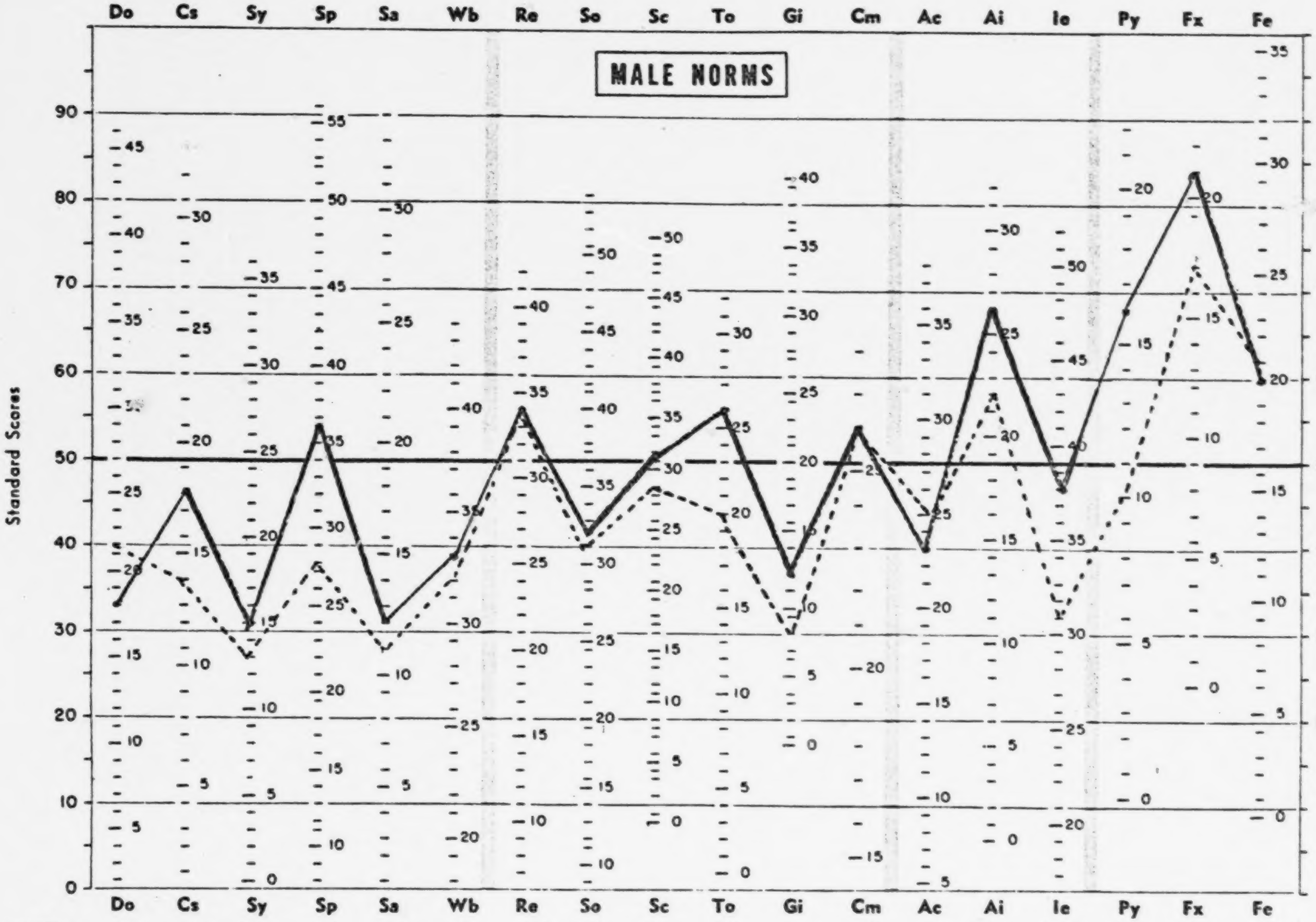

Key

Pre-course test:-----

Post-course test:———

	Do	Cs	Sy	Sp	Sa	Wb	Re	So	Sc	To	Gi	Cm	Ac	Ai	Ie	Py	Fx	Fe
PRE:	22	14	13	28	11	32	34	31	29	20	8	26	25	22	31	10	17	21
POST:	18	18	15	36	12	33	34	32	31	26	12	26	23	26	38	16	21	20

Male Norms

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Name ROY STOKES

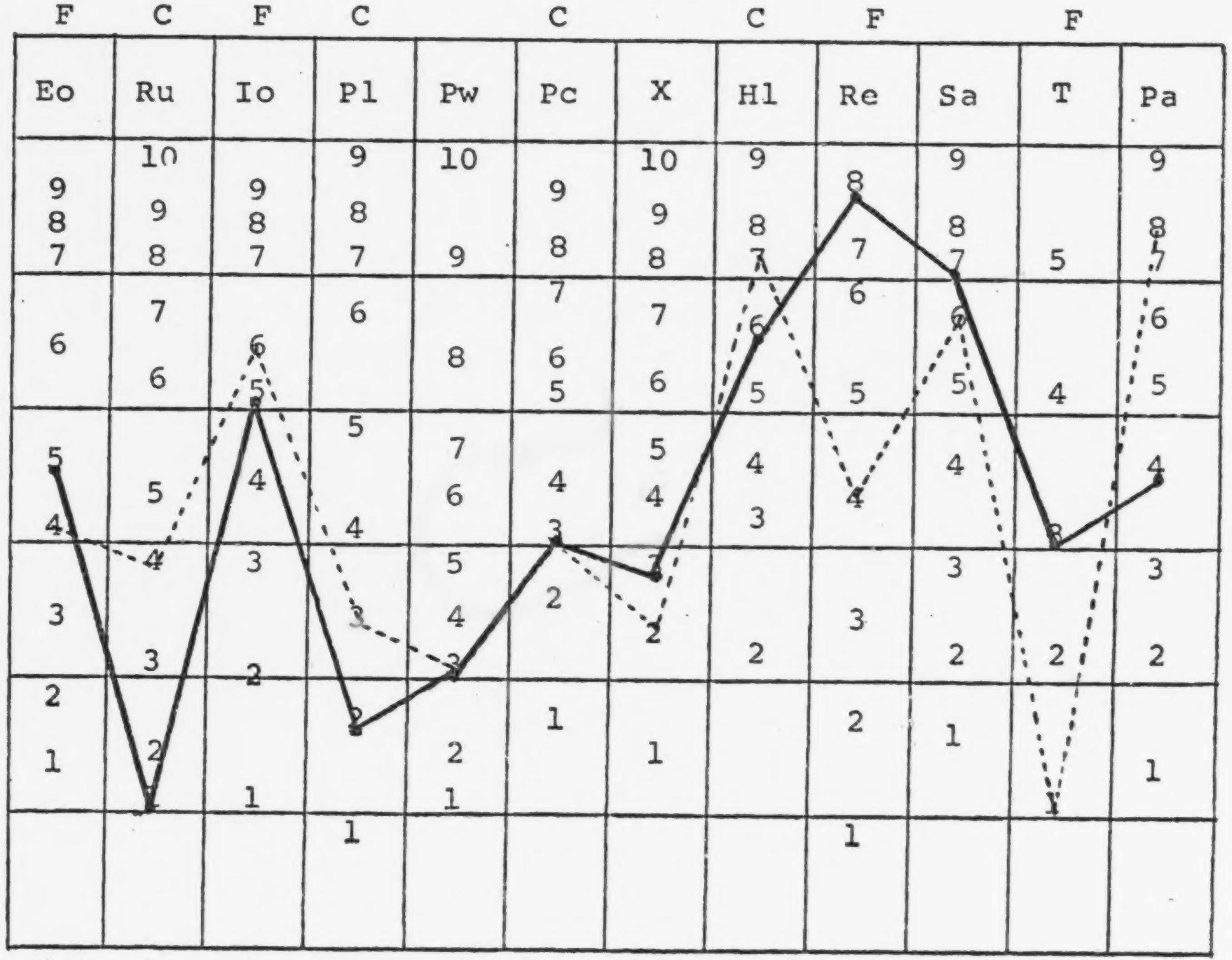
Date

RUNNER STUDIES OF ATTITUDE PATTERNS
INTERVIEW FORM III

Eo: Experimental Orientation
Io: Intuitive Orientation
Ru: Emphasis on Rules and Tradition
Pl: Practical Planfulness
Pw: Desire for Power and Authority
Pc: Passive Compliance
X: Extroversiveness
Hl: Hostility and Blamefulness
Re: Resistance to Social Pressure
Sa: Social Anxiety
T: Pleasure in Tool-Implemented Hand Skills
Pa: Performance Anxiety

Key

F = Freedom Orientation
C = Control Orientation
Pre-course test =------
Post-course test =——



	Eo	Ru	Io	Pl	Pw	Pc	X	Hl	Re	Sa	T	Pa
PRE:	4	4	6	3	3	3	2	7	4	6	1	8
POST:	5	1	5	2	3	3	3	6	8	7	3	4

STUDENT HISTORY: CHERYL DUNAWAY

First Entry

I have had my first consultation with Cheryl, who is from a small Georgia town. As she characterizes herself, she is still finding herself in the world. Her CPI is distinguished mainly by its general lack of departures from the norm. Sixteen scales fall within 1 S.D. of the norm. Intellectual Efficiency is on the low edge of 1 S.D. below norm. Good Impression is depressed almost 2 S.D. and Flexibility is elevated almost 2 S.D.

I read the 3-1/2 S.D. spread between Good Impression and Flexibility and the low Intellectual Efficiency and slightly depressed overall profile as a pattern that, along with my total observations, gives me the following picture: Over-all life engagement is adequate to hold her own, be as happy as most people, not a trouble-maker, intentially, for those who rely upon her, but also not likely to deliver anything outstanding for herself or others. I would speculate that she has consciously involved her energy with orienting her life to the goal of "normality." She shows her energy mainly in her drive to belong to the main stream. She has advanced her interests with two principal characteristics: (1) a shrewd, distant wariness in her relations with others, and (2) an insightful nature which is kept within socially approved bounds but is nevertheless continuing to keep her open to growth experience.

In consultation, Cheryl explained, "You know how high school girls can be cruel," and she went on to tell of her rejection by the circle of girls from whom she sorely needed acceptance. She told of how terribly upsetting this period of her life was. She had been bothered by horrible dreams and other kinds of emotional problems as a consequence. Even now she felt different because of this, but she was beginning to get over it, she felt.

I told her of experience that gave me understanding of what she had gone through and was trying to overcome. And I explained what her CPI profile indicates for her further development. I further explained that I was anxious to support her in whatever she decided upon in her self-direction commitment (as orally expressed in the full-class session).

She requested me to offer more knowledge as to how she could best proceed with the job of bringing about the changes that she wanted. I mentioned that some other class members had asked for this kind of information. I said that I was thinking about this expressed need and how I could best help meet it.

Cheryl seems receptive and honest. It is an open question as to how much effort she will put into her self-development--with no further inspiration for her life.

It seems to me that Cheryl may be a product of the dynamics that Sontag (1958) refers to in his concept of slide into femininity. Cheryl may be viewing her college experience as a self indulgent kind of pleasure leading to the life of a wife and mother, for which she appears to feel she is already amply developed. My interest in Sontag's concept of slide into femininity has me particularly curious about this aspect of Cheryl's dynamics. Other class members show similar dynamics. The course must operate with many such unknowns of inspiration, aspiration, sense of destiny, and the like.

I have already mentioned Cheryl's concern for belonging to a group. She is small, with big bright eyes, an attractive lift to her nose, and a trim yet well-filled figure. One would not guess that she had suffered from rejection by the girls she sought to be accepted by during high school. Her quickness of body movement along with her light air portrays a person capable of not only acceptance but leadership.

I feel that limited exploration of Cheryl's past may be appropriate in helping Cheryl recognize what areas need rethinking.

Cheryl told me that she had been to a pot party. She had been surprised by the discovery of what was going on. Users had argued that she was square in not trying it.

She said that she told them that this was the wrong kind of thing to get started with; that she didn't want that kind of life.

Second Entry

Cheryl seems to have involved herself with emotional coping patterns in the tasks of social ascendancy and mate attraction. It may be that she is like one of Viktor Frankl's seekers of happiness that he tells us will never be happy because one doesn't get happy by working for it but by working for less self-centered ends.

I am speculating as to what would best encourage her self direction. I will find out how interested she is in investigating the slide to femininity. As I see her now, she is busy playing the safe course, but she is still sufficiently daring to get herself to college and to succeed with the life of a college co-ed. Increased ego-strength and self-ascendancy would seem to support whatever action direction she chooses. She has expressed interest in this kind of lifting of her self concept. I still do not perceive any inspirational challenge.

The experience of open acceptance of one another as class members and the supportive relationships of the small group experiences should help Cheryl. She has an opportunity to support the growth of Alice, for example, in which instance her southern background might bring tension, causing need to restructure. It would seem that with Cheryl it is particularly important to help build working relationships of acceptance and support dynamics with other class members.

After I see how she responds to other-centered challenges, I will know more about where she is in her development. Her relatively high Flexibility means that confrontations might send her home to rethink matters she has always taken for granted. Structure that challenges her basis of personal acceptance and rejection of differences would seem appropriate. Beyond this, I will ask her if she wants to read about Sontag's concept of slide to femininity and then give her small group her ideas about it. It will be interesting to hear if she agrees that this is a big factor in limiting giftedness and effectiveness of girls, generally, with herself included.

The first question for Cheryl is how free she will allow herself to be in reaching for growth. A second question is how much she will lose herself in relations with others. She may offer a pleasant surprise. She is the favorite of my 13-year-old son, who met her at the class-organized pizza rally.

Third Entry

At the small group meeting today, Cheryl said she cared about living for meaning, about finding meaning in what she did. She said that she cared about finding meaning for herself.

Fourth Entry

(Written following session 22 of 30 one hour and 40 minute sessions.) I had a good consultation with Cheryl. She came in very smartly dressed in a purple suspendered white blouse and modestly-styled miniskirt. She was carefully and yet daringly made-up. We talked about being uncomfortable as to how you were going over with other people. She mentioned again that she was still getting over her high school days' rejection by her girl friends. I tried to factually document her accomplishments that made her a success without having to bother to be something beyond her natural self. I found that as she relaxed with me, she became a different and much more interesting person.

Twice she reacted to what I was thinking by stating, literally, what was on my mind before I could begin to speak it. I mentioned the strange feeling she gave me in reading my mind. She joked that there must be ghosts with us--with a nice sense of humor.

I shared the feeling of wishing that she could be more relaxed in social settings so that her natural charm could come through better. She gave the impression that she was getting seriously interested in the course project of increasing her self direction.

But she is still mostly absorbed by her boyfriend needs and involvements. There is the engagement she just turned down, for example, "to a boy with a big home with color TV and all that sort of thing."

She said that she thought she would be married before she ever finished her first year of college. This was kind of as a confession that she had come to college to get a husband. Then she said that now she thinks she wants to finish college, get a credential to teach, before getting married.

Given another organization of society, Cheryl might have a wider range of alternatives from which to select and design her life style for a small Georgia town. As is, she must decide whether the role of a mother of a growing family may in itself afford fulfillment.

Cheryl is not an outstanding example of a gifted girl. But one can only speculate as to what she would be in college if she had a history of more inspiring life-orientation. Her emotional coping of being nice or ugly, as the occasion seemed to demand, may have tended to keep her uncreative. As long as others had done the creative coping in her behalf, she would have been less motivated to engage in creative behavior. This pattern may have been reinforced by Sontag's slide away from giftedness, to further handicap her self-development.

Fifth Entry

Cheryl is more relaxed, poised, and receptive in the sessions, at all levels--individual, small group, whole class. Her stature is increasing in the class. But she still does not come across as a penetrating, big feeling person. She shows little ambition or curiousity. Her direction is still oriented toward being a small town girl with limited horizons. But who is to say that she is wrong, if this is what she wants?

This is a critical time of the course for Cheryl, and many other students. At this point, she has to decide whether to take self-development seriously or try to fake her way to the end of this different kind of course. Under the increasing course pressure, some kind of decision has to be made.

Last Entry

Cheryl is coming across more mellow and deep. I don't know whether it is her acceptance in the small group that is doing this or a more fundamental re-orientation. In any event, she is coming out much more genuinely than when she started the course. At first I felt that I was talking to a mask with her. Now I get the feeling of her interacting as a human being in authentic contact with her surroundings.

At the last small group meeting, she said that she was going to hate to see this class end, that she didn't know what would take its place for her. She mentioned that she never spoke to students of her other classes, but with this class it was different; whenever she saw someone on campus she would call out a "Hi" to them.

In her last consultation, Cheryl volunteered that she was opening up only partially. I didn't press her, since I am her consultant not her counselor, and the consultant role does not include psychotherapy depths of personality probing. With the course about to end, this was more appropriately the time to be easing myself out of the intimacy established. It all ends too soon. Cheryl, like many another student, is going to need close teacher-student relationships as she continues her college experience. Failing such educational structure, her development is going to suffer.

Cheryl's admission of only partial openness shows a developing honesty. She could become a truly talented and dedicated teacher if she wants to. Will her progress continue? I can better guess this when I have seen her post-course personality inventory. I feel that Cheryl has gained in openness and poise, and direction. The openness allowed the direction to shape.

But, again, the course was too short. She, herself, expressed the need for the course to continue. I saw her change from a defensively busy, intentionally light-headed kind of person to a more free, relaxed, extending, genuine kind of individual. It is difficult to communicate in words and establish through quantitative evaluation the subtle personality shifts such as I have witnessed in Cheryl.

CHERYL DUNAWAY'S COURSE EVALUATION

I feel like the course has been a profitable one. It was very hard to adjust to, being the only self directed course I've ever had.

I feel perhaps that too much time was wasted at the beginning of the quarter. It would probably be good for the instructor to have a carefully planned schedule for the first three or four sessions. The tests we took were well worth our time, but things could have been more organized.

Maybe a member of the class from the prior quarter could come in and talk to the new students. He should tell them some ways to prepare themselves to get the most from the class.

The informality in class was very effective. I enjoyed the close relationship of teacher-student and student-student.

The small discussion groups were very advantageous.

The instructor did a very good job of establishing in the beginning an atmosphere of ease. He chose very interesting guests to speak to the class.

I think the instructor succeeded with almost every class member in getting complete honesty. The class is certainly conducive to open-mindedness. I learned to value and respect my opinion along with the opinions of others.

The instructor chose excellent literature for the class--such as Existentialism in Education and Man's Search for Meaning.

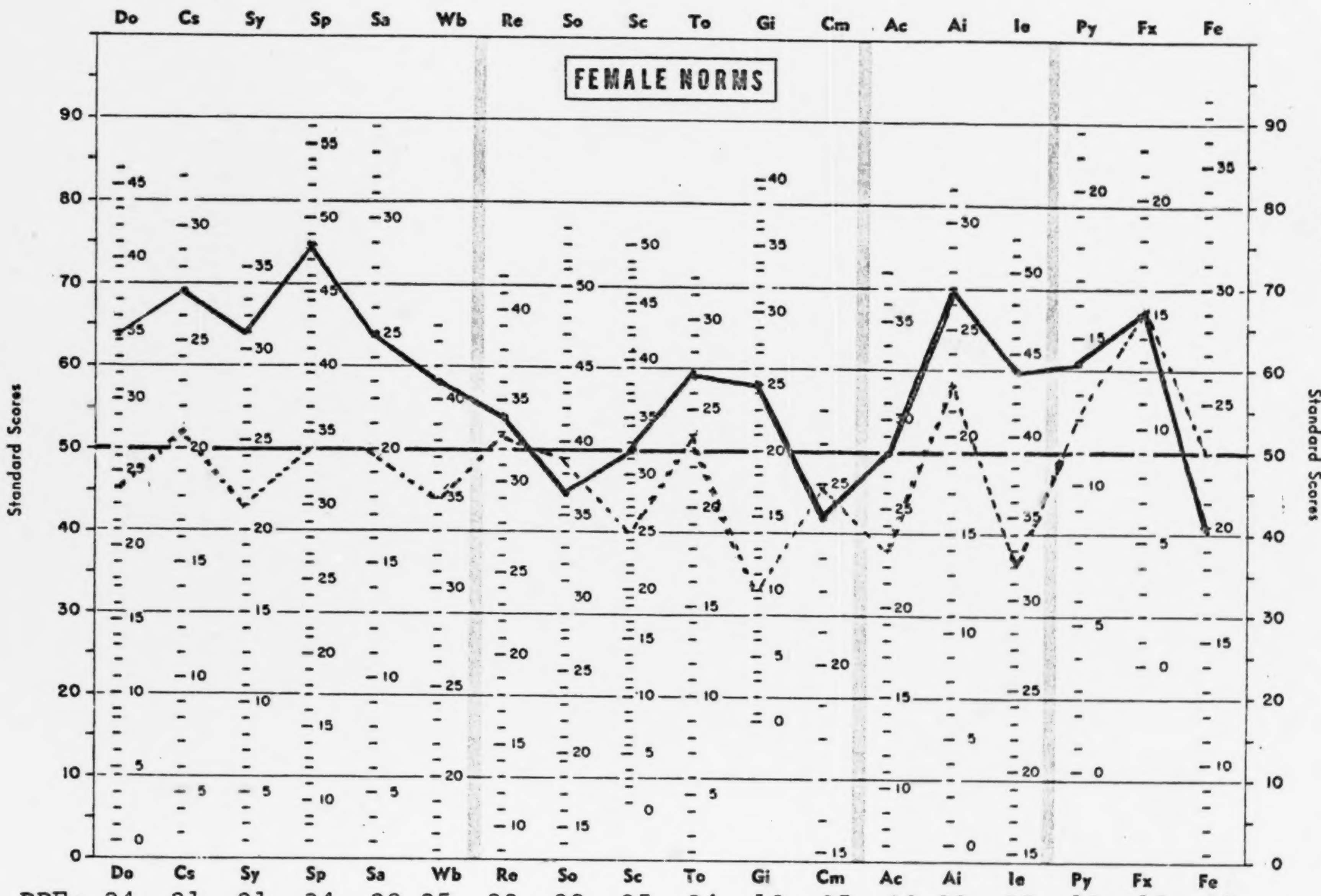
I feel a little bit bitter about the final, however. I feel as if we're given material we've never even seen before. Also, students in the other classes are taking the final by the directions of their instructor.

All in all, the class was well worth the time spent. I'd like to see many more like this in the future.

PROFILE SHEET FOR THE *California Psychological Inventory*: FEMALE

Name CHERYL DUNAWAY Age ______ Date Tested ______

Other Information ______



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PRE:	24	21	21	34	20	35	33	39	25	24	10	25	23	22	32	12	15	23
POST:	35	27	31	48	25	41	34	37	32	27	25	24	28	27	44	14	15	20

Female Norms

Notes:

Key

Pre-course test:-----
Post-course test:———

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Name CHERYL DUNAWAY

Date

RUNNER STUDIES OF ATTITUDE PATTERNS
INTERVIEW FORM III

Eo: Experimental Orientation
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Pl: Practical Planfulness
Pw: Desire for Power and Authority
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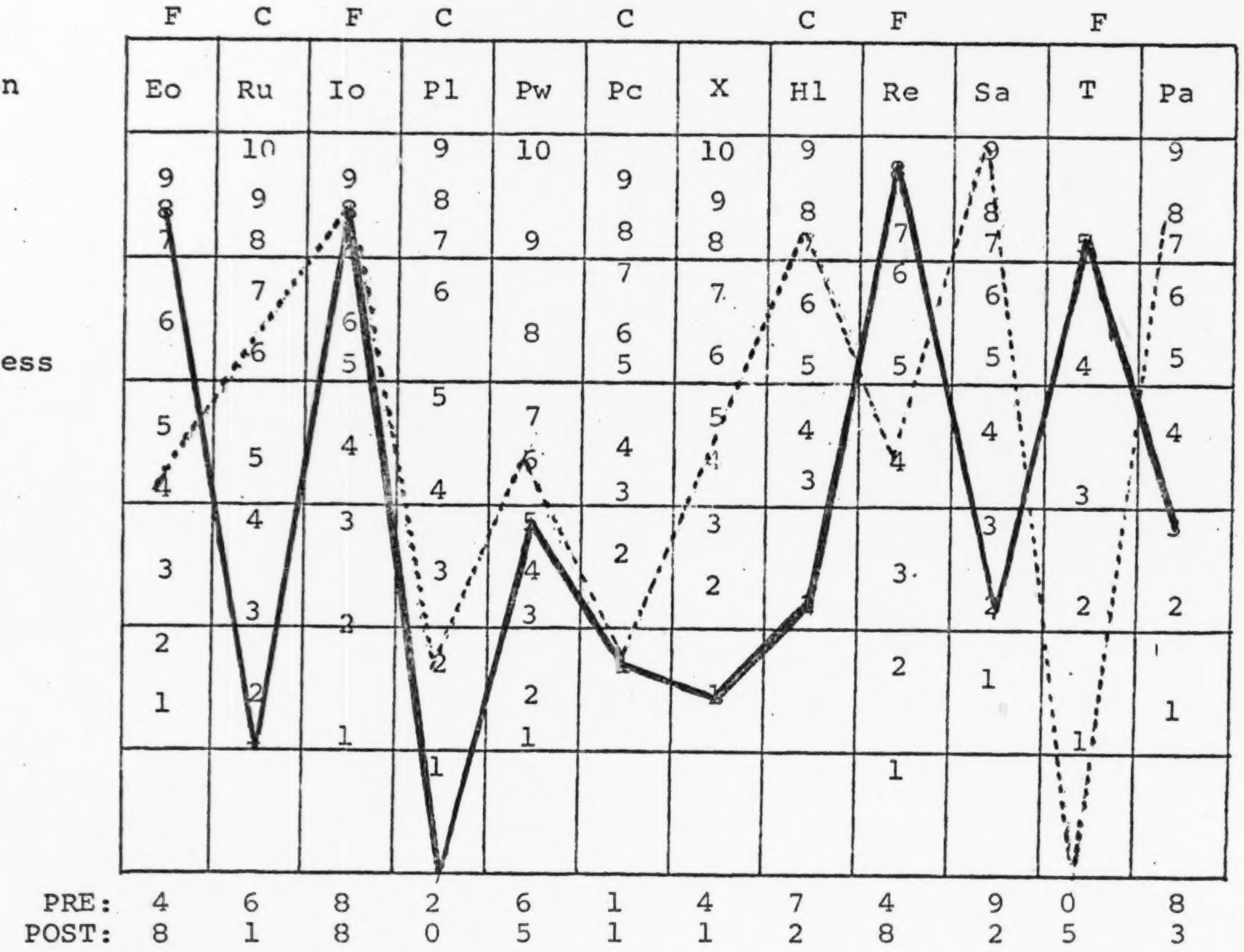


	Eo	Ru	Io	Pl	Pw	Pc	X	Hl	Re	Sa	T	Pa
PRE:	4	6	8	2	6	1	4	7	4	9	0	8
POST:	8	1	8	0	5	1	1	2	8	2	5	3

Key

F = Freedom Orientation
C = Control Orientation
Pre-course test =------
Post-course test =———

STUDENT HISTORY: JOHN TAYLOR

First Entry

John entered the class a week late. I informed him that he would be expected to study ten hours a week, two hours for each credit of the course, and I told him a little about the course and the self-directed process under which he would be expected to do his own work, without the usual kinds of teacher supervision. He was reluctant, and he said that he would like to have a chance to think things over.

At the next session, John reported that he had decided to make the commitment I had asked for. That is, he was going to study ten hours a week, as the other students of the course had committed themselves to do.

I took him to be a deliberate, conscientious student. His CPI showed a positive self concept, about 1 S.D. above the norm, and other distinguishing features of 2 S.D. below norm in Self Control, 1 S.D. above norm in Tolerance. This was coupled with an Achievement via Conformance and Achievement via Independence reading about 1 S.D. below the norm. This gave me a profile of a person I judged to be relatively self-satisfied with a life-style that is somewhat irresponsible, not very strongly motivated, and going nowhere in particular, without feelings of inadequacy.

I speculate that John comes from a family that serves as solid support for his future, giving him freedom from worry about what he will make of his life. I am wondering how much John, at 20 years, has thought out an independent course from his parents' direction; for his CPI profile shows a kind of coasting out into the world with a continued personality engagement of childhood pattern in which creative attack upon his circumstances is lacking.

At this point, I would say that if he is going to be a teacher, he will need to find a fire for his ambition in order to be an enthusiastic, dedicated teacher.

This much I know--he has expressed enthusiasm for the way the course is being conducted, and he has scored among the lowest scores on the Gibson Part I test (a self evaluation exercise covering the first half of the book). This would be consistent with the above personality analysis.

In the process of laying the profiles open during the first small group meeting, the "coasting" pattern came into the discussion. John concurred to a great extent with the analysis I offered of where he seems to be relative to relaxing rather than moving ahead with adult career building. In fact, as John talked about himself, I was impressed by how close the CPI profile came to predicting his words.

Then, when John came in for his consultation, he expressed hostility about his CPI. He attacked the inventory, calling for me to show him that this instrument was measuring anything real about him. I told him we weren't interested in the CPI; we were concerned only with what he wanted to do for himself through his reading and other course work, so we might just as well talk about his ideas as to where he was and where he wanted to go. He agreed, and then he went on to give a picture of himself much like what the CPI had offered. In other words, he said he had solid family support; his Dad was a wholesale grocery distributor and was waiting for him to get out of college and take over his business. He was all set up for making a living and had no worries in that respect. At times he had considered breaking away from the family and going his own route, but he hadn't taken any serious moves in that direction. Meanwhile, he said, he understood that he was not as eager a student as most people around him.

When I compared what he had said to what the CPI had indicated, he noted the similarity and began to look at himself more questioningly. I suggested that he might do some further thinking as to what was at the bottom of his being angry about what we were saying in the small group meeting, when he actually agreed with it, as he now said in the consultation.

As the consultation ended, he said that he was glad that he had come in, and that he felt much better now. I told him that I felt it was real good that he was so honest. I said that I hoped that we could keep our feelings in the open and be honest with each other. I had a good feeling about the meeting, too. John is just thinking everything over at this point. For him, the SDP of this course is going to include a deep-think as to his identity. I speculate that for the present he will continue to do what he is forced to do, even in regard to pursuing self understanding. As the course structure of existential deep-think of life and direction is pursued, I wouldn't presume to guess as to whether he will decide to turn on and begin to live a value-integrated, choosing, and committed direction.

Since lower need hierarchy structures no challenge for him, I may encourage him to read self actualization and attitude change materials that I have on reserve at the library. He might be interested in Frankl's Man's Search for Meaning, as a beginning.

To sum up, if John begins to aggressively direct a self-help process of education, setting his own course, I will encourage him. Meanwhile, I will use my instructor role to bring about reading and discussion that is designed to provoke him to think about what he does or does not want to do with his life. At least, I feel, John will finish the course with the self-knowledge that his life's questions are bigger than whether or not to take over the grocery distributorship.

There is only time enough, at best, to expect the beginning of a shift in attitude on John's part; I would not be surprised if research instruments fail to show the course to have affected him significantly. Yet, a year from now, he may look back upon the course as significant to his development.

But enough of speculation. We shall see what John will do. As of now, he was among those who failed to finish the Gibson test with the schedule to which they committed themselves. I will give him the re-test, and pleasantly make it clear that he is presently failing the self-directed process upon which half of his grade is based.

Second Entry

John was more active in the small group session today. In the "what are you most proud of" exercise, he said he was most proud of his honesty with others.

Third Entry

John failed to appear for the existentialism test. He told a fellow student he wouldn't come to class because he was not ready for the test. It seems that he is continuing his "coasting" pattern in this class. I don't know whether he will break through this habit to really look at his life style and where it is taking him. Perhaps he already sees and does want to work for more than basic survival needs.

The TDS structure seeks to provoke him to think through his choices. Which is the same as to say that his education calls for a process of choosing anew, which may be no change or a great change in his life style. A confrontation may be needed. I feel it should come from his peers in the class or his small group, not from me. I am too separate, too biased against his "coasting" life style, to be able to weigh his perspective. My genuine response to him is probably important to give, and I will do this, but he must have understanding and acceptance to remain open.

John scored 66% on the Gibson Part II test. The lowest score was 61%, and the class mean was 78%. He was not ready for the test on schedule; he took it in the make-up session. I have the feeling that John is beginning to feel guilty because of his performance. We will next see what he does when his coasting brings him into guilt situations. His behavior has given hints that he will become defensive in various ways as the course continues--unless somehow he flips into a different pattern.

Fourth Entry

(Following 22 of 30 sessions.) John has not been applying himself. He missed his consultation appointment.

However, he came by after my lecture in which I brought impingement to the issue of self development. I haven't given up on him, but he is valiantly resisting. I am pushing the dead weight of years of lethargy conditioned from the displaced responsibility of his life style.

Fifth Entry

Today John seemed real alive to the course. It is as if he has decided to move ahead. He volunteered that the last two small group sessions have been the best part of the course so far. He has become personable and sensitive toward the other students. He makes fine contributions in the sensitivity aspect of the sessions. He pointedly asked me how I reacted to him--how he was doing. I told him that he seemed to have become more involved with the self-development idea. I said that it was as if he had decided that he had settled for too little in his previous self concept of adequate effectiveness and that he now seemed to have reopened exploration.

I have the feeling now that John will finish the course with an elevated adjustment from his entry pattern, but I predict this guardedly.

Sixth Entry

John has turned out to be surprisingly responsive to the course structure. In his last consultation, he offered that he resented me at first because "you scare me." He went on to explain that he had come to realize that he had been hiding a lot of truth from himself that he should have realized sooner. He said that he had gotten a lot out of Viktor Frankl's book, Man's Search for Meaning. He spoke of his meaning as relating to his parents and his children to come--what he was receiving from his parents and what he hoped to build as a heritage for his children. He said that he understood himself and his intentions better now. He repeated his plan not to get married for a while, until he had better worked out where he was going with his life.

We talked about the future of continuing a materialistic heritage in a small southern community. He referred to the black liberationist who had talked to the class about the "coming revolution." This seems to have hit home to him powerfully. He told me about the merits of an education as the best investment one could make in an era that threatens to get worse before it gets better.

Last Entry

Having arrived at the point of openness and genuine re-examination of previous attitudes, John moved back to an aloof attitude when he received a D in the Departmental Examination. John tells that he had resisted what the instructor had said because this information had been too upsetting to his plans. He says that he has now gained an attitude that may fit better with the times in which he lives. What this means in concrete action is unknown to me.

John is still caught in the formative stage of his career development. This course only intensifies what has been going on for him. Without this course, he probably would have taken over his Dad's grocery business. He may still do so. But I feel that he is going to take a harder look at his life-long aspirations, in a deeper reflective schema. All this is my feeling. I hope that some of what I intuit about John shows up in his post-course personality inventory.

JOHN TAYLOR'S COURSE EVALUATION

I would like to say that this course made me think more than any other course I have ever had. I would approximate that I spent at least two hours a day associating everyday experiences with the ideas I picked up in class. In closing this work report, I would like to say, regardless of the grade I get in the course, it has been a course that has given me a great deal of self satisfaction.

I. Notes on evaluation: stressing possible means of becoming motivated.

  A. Small group sessions were important in achieving interpersonal relationships among students and professor.

  B. Individual consultations inspired many people. Here the professor had the ability to associate his past experiences with the students' experiences and was able to make the student aware that the experiences, either past or present, were the bases for attitudes and ideas.

  C. The importance of clearly designing the complete course structure at the beginning of the course. This runs parallel with assigning the right materials to use.

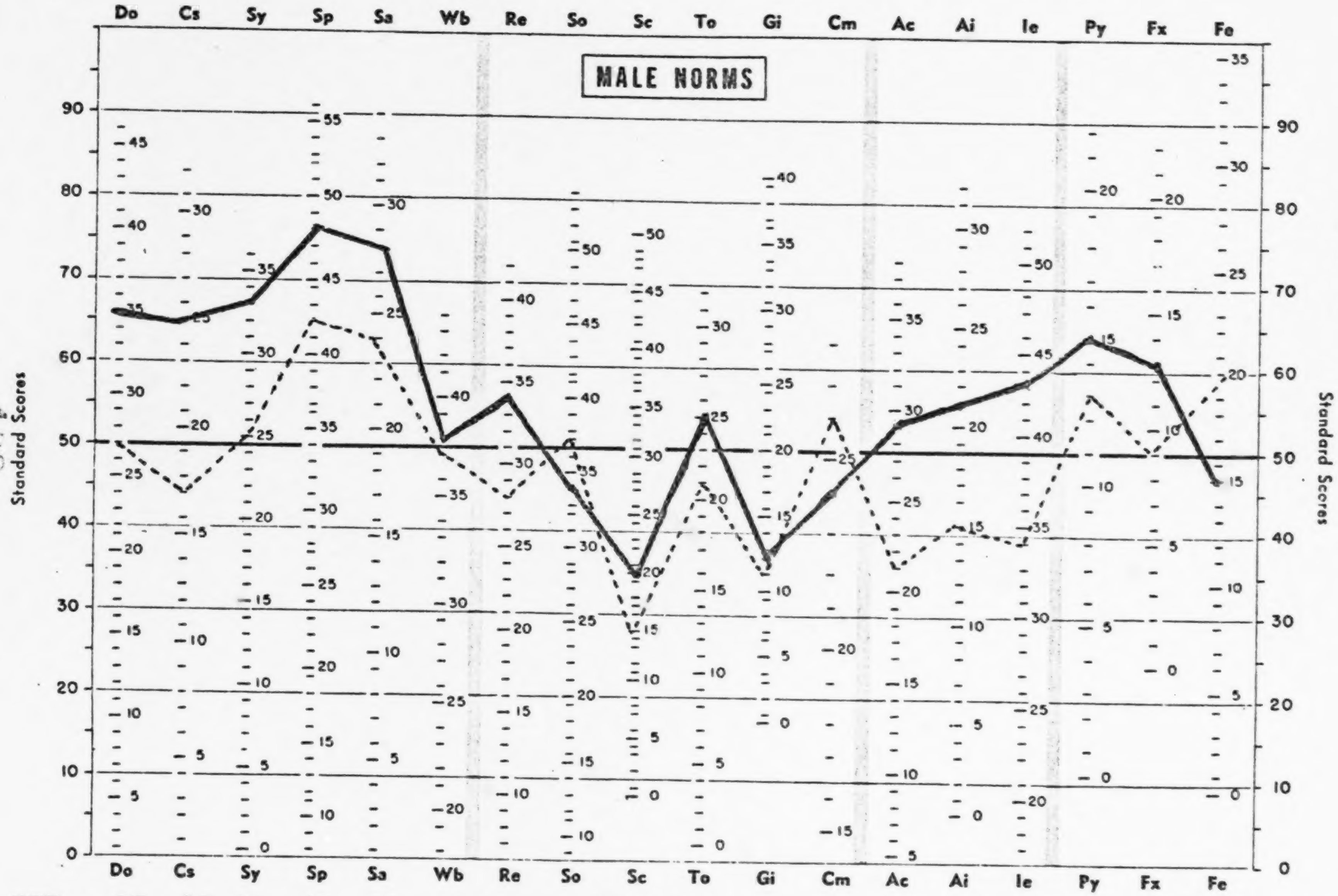
D. The use of creating hostility as a possible means of feedback on the student's part. If this method works, this is a good way in which to motivate students.

PROFILE SHEET FOR THE *California Psychological Inventory*: MALE

Name JOHN TAYLOR Age 19 Date Tested

Other Information

Notes:



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PRE:	27	17	25	42	24	37	28	37	15	21	11	26	21	15	34	13	9	20
POST:	35	25	33	48	28	38	34	34	20	25	12	24	29	21	43	15	13	15

Male Norms

Key

Pre-course test:-----
Post-course test:———

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Name JOHN TAYLOR

Date

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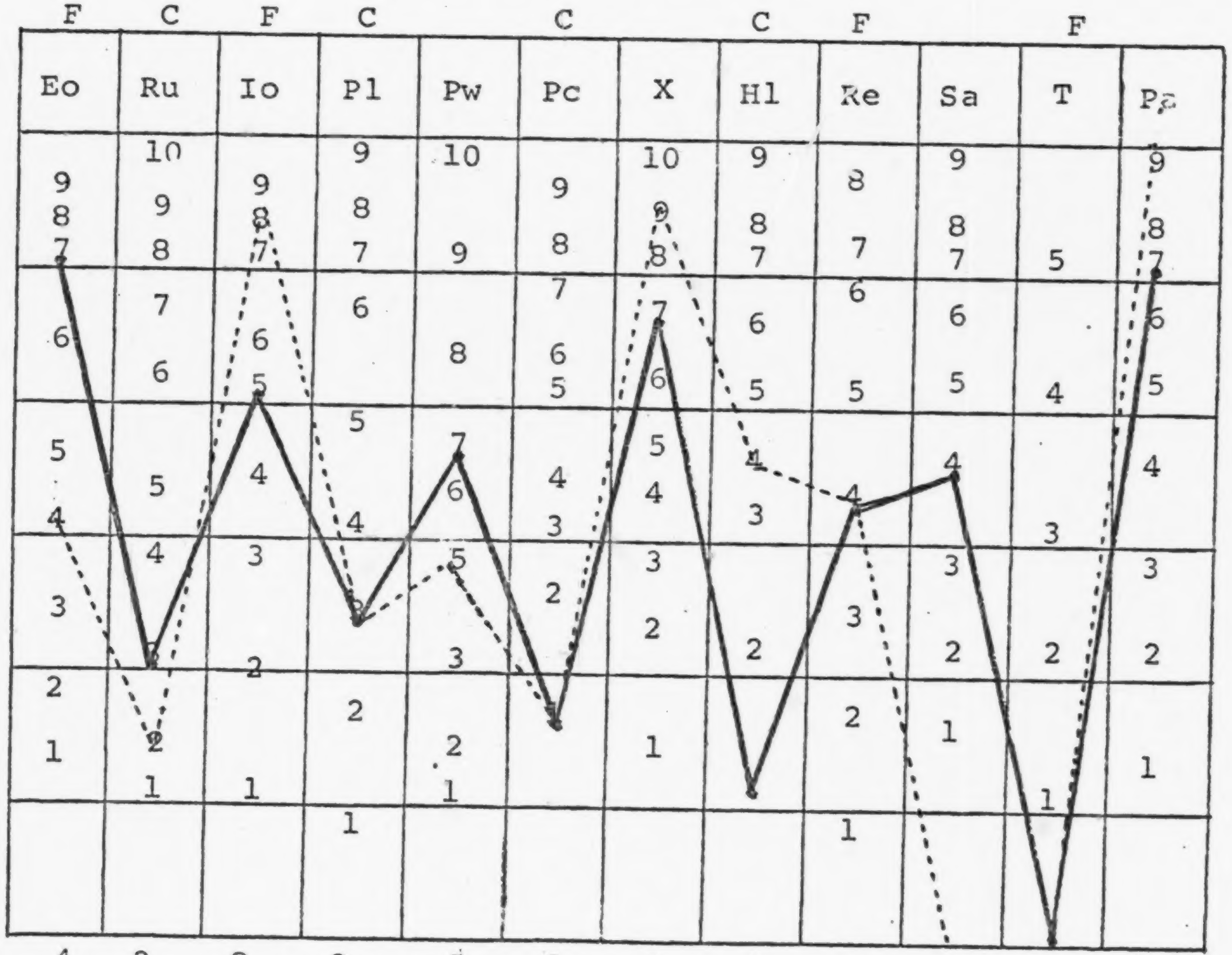


	Eo	Ru	Io	Pl	Pw	Pc	X	Hl	Re	Sa	T	Pa
PRE:	4	2	8	3	5	1	9	4	4	0	0	9
POST:	7	3	5	3	7	1	7	1	4	4	0	7

STUDENT HISTORY: DONNA WILSON

First Entry

Donna is an attractive girl of 20 years, with a CPI profile unusually different, unusually rich in development potential. The most extreme scale is Well Being, which is 4 S.D. below norm. Self Acceptance is 1-1/2 S.D. above the norm. The Socialization scales follow a highly depressed pattern, but with Achievement via Independence, we get ascendancy to the norm, and with Flexibility, we get elevation to 2-1/2 S.D. above norm. I see the high Flexibility as a working tool of adaptability that gives promise for doing something for herself in the areas needing work.

I hope that she will find the kind of authentic student-teacher and student-student relationships that will begin to bring some elevation of her sense of Well Being. Fortunately, she is open and honest enough, and her ego strength seems high enough, to look at her present life engagement honestly. She is a very pleasant person, who seems to be struggling with some kind of life circumstance or adjustment problem that is rough for her to handle.

I am interested in learning of the history that relates to the extreme vacillations from scale to scale that we find with her. I may decide to suggest psychological counseling to Donna, but at this point I am optimistic about this course giving Donna substantial support for her personal development.

Second Entry

Donna is another testament to how different students are from one another. In her consultation, I talked with her about her low Well Being. She told me that she had been very disappointed with the University of Georgia. She had planned and worked for this experience as for a dream to come true; then when it did, she was turned off by it, leaving her nothing, sort of blank, and not knowing what she was about.

She had hated her foreign language course of last semester because the instructor had imposed it on them rather than making it interesting. Generally speaking, her courses had not inspired her, which was particularly bad because she had expected such a different experience. At times she had felt very confused, but she said she was coming out of it.

Was she really, I asked. Or is that what one is always supposed to say--that things are getting better now.

At that, she wasn't sure.

We talked about possible complicating circumstances: her social life. Boy friends, and so forth. The question of what she wanted from school, and from life. She expressed her interest in art, and lately in art education. She had once been in music, and had played the flute, but had gotten away from that.

Still, she loved music, was real involved with it, before she switched to art. Relative to art, she expressed concern over being genuine, that is, really trying to say something rather than trying to gain prestige through what you do.

I sensed a void that Donna was structuring over with her life engagement. We got into things to do for kicks. She mentioned that she "hadn't tried any of the organics." I pleaded ignorance, and she informed me that these were the mushroom compounds and that sort of thing. Nor had she tried LSD. Actually, she had tried Mescaline. As for grass, that was mostly imagination. Although she said this about grass, later she said loud music knocked a person out of their mind, and that it got you worse when you had been smoking grass. She said that this was a horrible feeling and yet great at the same time.

The ease with which she handled the conversation made it clear that she had talked about this a great deal before. She told me that with some kids drugs are the only thing they can talk about. "It's a regular cult with them. It's their whole life."

I didn't want to get preachy, but I did offer that I had recently gotten into an argument with someone who said I couldn't knock drugs if I hadn't tried them. I said that

I had told them that it was not the quality of the wine that was in question, but the quality of life without wine, regardless of how inviting the chemical bliss or death might be.

We agreed that there was more to be gained by staying life-oriented. I spoke up for artists as the historical spokesmen for beauty of sense experience as a universal privilege opened to all who would drink the wine of the world around them. I said that people who claim to be artists and then turn to drugs for their kicks are like selling out on their own thing. Who is left to push the naked beauty around us if artists switch to chemicals? She agreed that it was like selling out.

I mentioned my appreciation of artists as value-integrated people--the true artists. I said, "Who else will stay up all night just to make something that is beautiful?" I said that people like that are the salt of the earth for me.

She said that there are too few people who are busy with trying to make beautiful things, on their own.

I told her that as an artist, she was important, as long as she was holding out through the rough go for creative commitment. But the damn shame was that the artist who took a drug short-cut was a nobody in a whole new hierarchy in which the heroin addict was the Michelangelo.

I tell all this to report my way of relating to Donna, which may have been too preachy. I know that Donna's world derives from a long history of education and miseducation. I realize that it takes much more than words to swing direction from kicks to commitment.

I don't mean to infer that Donna is now an addict. She tells me that she has not tried any hard drugs. It is the psychology, not the physiology, of her adjustment that worries me. It is clear that Donna is dangerously alienated from life and meaning (in Frankl's sense), even though she is hanging in for a value-rich world.

After we had dragged bottom in talking about the world of beauty that could be but isn't, I called her attention to the remarkable similarity between her profile and that of my good friend who is resident composer of a state university and a former member of a famous string quartet. I noted that the big difference in profiles was in Good Impression and in Well Being. I suggested that if she were on the faculty as a resident composer, and was also a famous violinist, maybe she would have these differences in her profile, too. She enjoyed this a great deal. It picked her up considerably.

We got into what education could be as joyful learning experience, if the system were right. She seemed to get more involved with this possibility than anything else. I offered to loan her a book, Education and Ecstasy, with the promise that she would not read it if it didn't grab her. I said that the book was far out, new and novel, free-university oriented, with a break-away from old ways that she rejected, and a reach for a dream. I felt that this book might give her new hope.

Needless to say, this consultation ran beyond the 30 minutes. It took closer to one and a half hours. I couldn't close it until we got to a positive direction.

After class, later that day, Donna waited for a ride with a class member with whom I was having a long consultation. Finally, Donna came in to see if we were about done. She appeared to be high on something. Later, I apologized for the long wait I had caused her. She said it was O.K., that she had found something to do. Regardless of whether or not she had chosen a little chemical companionship to fill the time, the circumstance made me aware of the tremendous difference between words that issue from a teacher's mouth and the big, wide world that engulfs a person with its clock tic. Encouragement of Donna, if only for a few weeks, requires more than words. Her education must offer vision to share with her vision, dreams to tie with her dreams, love to stand with her love, and faith to join with her faith. I must allow her to become aware of my concern for her as a person. This may in itself open a world of education possibilities she has not envisioned--a world in which all are students in a warm, caring involvement with growth and life.

I have said that I may eventually suggest counselling therapy for Donna; but this is no solution--it is only the suggestion of a more appropriate specialist. Meanwhile, we will see how STRUSD Education can serve her developmental needs. I am as pessimistic as I am optimistic. She will write the ticket.

It seems very wrong that when this course ends, there will not be a continuing program that gives her this kind of chance. Her circumstances well illustrate the need for STRUSD Education. Close teacher-student and student-student relations would seem to be a continuing need for her in her educational searching and growing.

In weighing her circumstances, I take note of the fact that her profile's similarity with my violinist and resident composer friend may be significant. I feel that Donna has true dynamics of creativity moving her, causing her anguish unfelt by less serious artists. Donna feels a sick world encroaching upon her and she has not found the safeguards and instruments for defeating the threat of engulfment. Donna will go a very long way as the creative artist and spokesman she chooses to become, if she can win the battle of her present identity crisis in a way that moves her into aspirational orientation in which she is expanding to her full dimension of potential.

Third Entry

Just two days after getting the book, Education and Ecstasy, Donna had it finished. She returned it today. She said she had enjoyed every bit of it. She talked a little about it. A classmate, overhearing, borrowed it from me to also read it. This was the first time I had seen her enthused by her study. It was very gratifying.

Fourth Entry

Donna has begun another book. She is very independent in her relationship to me, not hesitating to reject my suggestions when she feels that way. Yet she is becoming enthusiastically involved in the course reading. Her change of attitude toward study is an encouraging development. I am hoping that it continues and deepens rather than fades out.

Fifth Entry

(Following session 22 of 30 sessions.) Donna, due to an error, waited for me for her consultation at the wrong time. She is trying. I am sorry I missed her. I asked her if she wanted a time slot where we wouldn't have to hurry with our talk, and she said, "Yes."

Maybe she has things on her mind. I keep discovering her potential as a young artist and beautiful person. It would be disappointing if nothing good comes of this course for her. I have seen her putting pieces together, and I intuit that, at least, this course is a kind of anchor, for the moment.

The Runners' Inventory indicated a high Social Anxiety for Donna. In talking about it, she reflected that it relates to the need of her parents' acceptance of her. This adds to her problems. Here she is, working hard at being what she feels is the right thing, a genuine hippy-artist, while her parents do not understand, and she feels further alienated and hippy-like because they do not understand. It is another way that she is sliced apart.

Sixth Entry

There is no closure available for me to subjectively evaluate what Donna has received from the course to assist her development. We may remember Donna's extremely low score in Well Being. Her pre-course Well Being was 4 S.D. depressed. I do not know whether this has changed. She does seem more open and happy, but this could be because we all know each other better now.

I feel that her needs as an artist are somewhat different from the needs of most other class members. It would be valuable to have a small group of only art students.

The small group discussions may have been far afield from her universe. I would like to have given more direct attention to the problems of aesthetic professionalism. At least, I referred her to some books that grabbed her.

Last Entry

Donna wrote a sensitive and inspiring course evaluation. From this I gather that the course experience was very important to her. But where has this left her? She is indeed a lost soul at this point in her life. I feel deeply for her. But I sense that there is little that people like me can offer her beyond a working structure of support, as this course has attempted. A friend who knows her situation said that she may turn out to be a real self-actualizer, if acid or speed doesn't get her in the process of her getting past her growth hang-ups.

It seems sad that a person could feel so good about a particular college course like this, and still be caught in the half-world between interaction with and escape from their environment. That Donna needs inspiring associations and individual support is not in question, but whether to suggest a psychological counselor to meet these needs is a question.

I feel that Donna's life is going to be a lone struggle.

DONNA WILSON'S COURSE EVALUATION

It is very difficult to evaluate something as broad and bizarre (to the present education system) as this particular ed. psych. course. I see it now, at the end of the quarter, as only a beginning of a long mind-bending, probably eventually soul-rending, way of viewing the educational system, myself in relation to it and possibly the world. It's far reaching implications are yet to be seen and nothing may ever materialize out of our group as far as tangible evidence of it's ever being, but none the less it did very surely exist as a real entity, at times a unified whole going about the very serious business of knowing our selves and one another honestly, unabashed, sometimes painfully and joyously to the end of self-evaluation and ultimately self-actualization (and effective self).

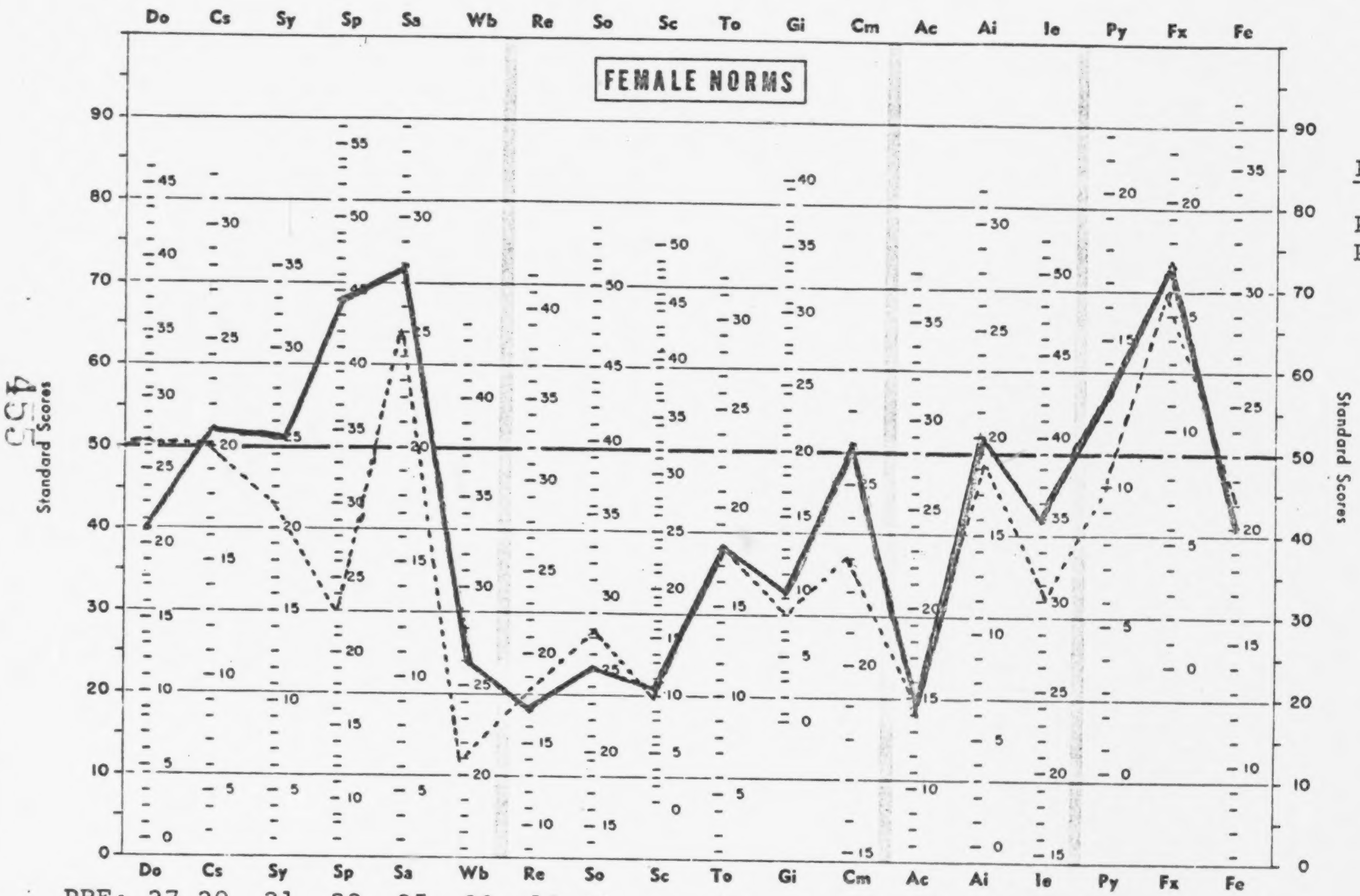
My first exposure to the whole idea of Alf's ed. psych. 304 was one of dubious examination, curiosity, and hesitancy. His initial approach, one of informality and straight forwardness, was truly surprising to me--it was the first such approach I'd seen taken at the University, and his encouragements to come and go as we pleased, smoke, eat, and say exactly what we thought during class about anything was to me a delight and at the same time something of a shock. What was the catch? Everybody seemed to be sort of wary of all this self-directed honesty bit, too. (A natural reaction, in the light of our fear-based learning background.) Here was, at last, someone who didn't bother with trivialities like grades, lectures, who wasn't a slave to finishing a certain textbook on time, and who seemed genuinely interested in, of all things, changing us in a positive way. It was too much. Well, as for myself, after I got over the initial shock, I went into the blissful freedom stage, where I just gloried in all the new-found time to explore and immediately became side-tracked with other things. Later I realized that the freedom carried with it the responsibility to do something with the course and all its potential, as well as mine, which came around to that dirty word--work. Then I began to realize that this commitment business was serious, not just something you play around with--it called for a dedication to an ideal. And not just any ideal. An ideal that would be freely designated and chosen by an existentially oriented person. It would call for introspection, which I had already done a good bit of on my own, as well as circumspection. The profiles and Runners were only the first step to knowing yourself; seeing on paper or graph your particular way of looking at the world and yourself, giving abstract feelings and vague longings a definite name, all somewhat frightening, but still a necessary part of the introspection. Then with circumspection came a being exposed to a multitude of new concepts and personalities, from a rigid Christian radical to a leftwing women's or black liberationist; all people turned on to life in some form or another - intelligent, active and determined to do something in their particular sociological niche that would have some effect on others. In short, awareness of the incredible, lightning-fast happenings of today, now. As for myself, I saw all this as a rare and wonderful experience, one upon which I had accidentally stumbled, like looking through the keyhole into a room filled with books and people, and wanting very much to go inside, and then someone hands you the key. Not that this hasn't happened before, but this is a new room, with new people and one gets in and never wants to come out again. This decision to go in and explore is a personal one and one that I don't really feel should be brought into an evaluation of the course. This can come with time, one naturally following the other, and just the significance of becoming aware in this extensive way of it's being there is in itself a heck of a lot for one course. Even with all its ups and downs, I feel that Mr. Alf, with his gentle, and at the same time, strong concern for us as individuals, has managed to truly stimulate most of us in the group in one way or another. This is saying a lot for students having so long been conditioned against real, exciting learning experience, and who didn't really know exactly what it was, while at the same time in the midst of an institution supposedly designed for that purpose.

PROFILE SHEET FOR THE *California Psychological Inventory*: FEMALE

Name DONNA WILSON Age 20 Date Tested

Other Information

Notes:



	Do	Cs	Sy	Sp	Sa	Wb	Re	So	Sc	To	Gi	Cm	Ac	Ai	Ie	Py	Fx	Fe
PRE:	27	20	21	23	25	20	18	28	9	18	9	23	14	19	30	10	18	21
POST:	21	21	25	44	28	26	17	25	11	18	10	26	14	20	35	13	17	20

Female Norms

Key

Pre-course test:-----

Post-course test:———

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Name DONNA WILSON

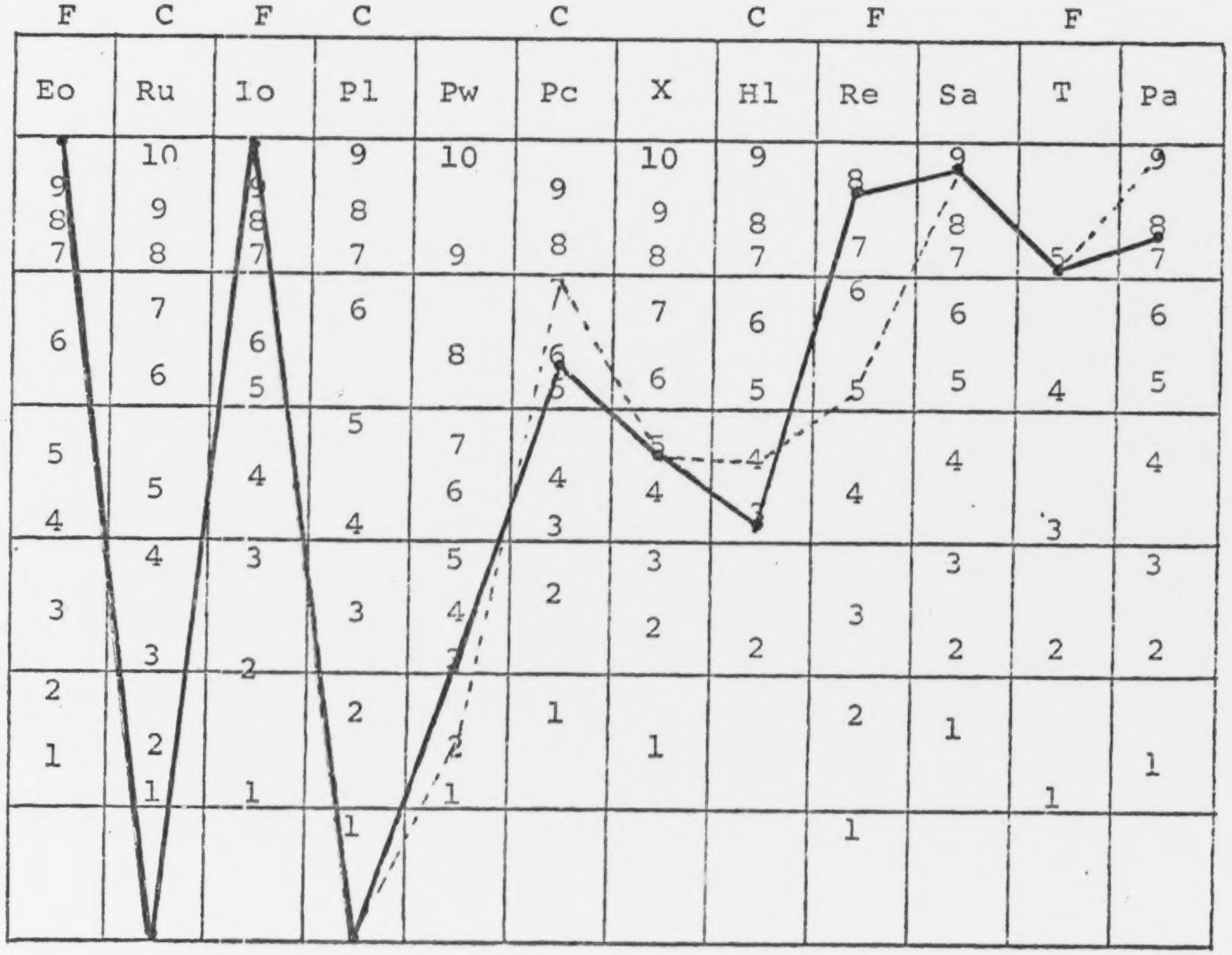
Date

RUNNER STUDIES OF ATTITUDE PATTERNS
INTERVIEW FORM III

Eo: Experimental Orientation
Io: Intuitive Orientation
Ru: Emphasis on Rules and Tradition
Pl: Practical Planfulness
Pw: Desire for Power and Authority
Pc: Passive Compliance
X: Extroversiveness
Hl: Hostility and Blamefulness
Re: Resistance to Social Pressure
Sa: Social Anxiety
T: Pleasure in Tool-Implemented Hand Skills
Pa: Performance Anxiety

Key

F = Freedom Orientation
C = Control Orientation
Pre-course test =------
Post-course test =———



	Eo	Ru	Io	Pl	Pw	Pc	X	Hl	Re	Sa	T	Pa
PRE:	10	0	10	0	2	7	5	4	5	9	5	9
POST:	10	0	10	0	3	6	5	3	8	9	5	8

STUDENT HISTORY: JOY PHILLIPS

REPORTED BY: SMALL GROUP CONSULTANT (B)

Joy Phillips is married, with two children. She is 27 and majoring in music. Initially, Joy's self concept was quite poor. Her expressed interest was to increase her status by obtaining a degree. She had not really internalized the idea that she was a person of worth and that she could use her opportunity to grow personally. The only goal that she verbalized and defended was that of enhancing her husband's musical career, and providing for her children. Her basic orientation was one of dependency.

In Joy, one could sense an awakening of interest as the group progressed. She raised questions, read extensively, shared her experiences, and was quite sensitive to feedback from the group. She expressed an interest in finding her own identity apart from her present social role function. She seemed to realize that she had skill as a teacher. She became aware that her experience provided her with a potentially higher level of maturity than her contemporaries without regard to their formal educational attainments. She is an open and sensitive person, who was able to utilize the group opportunity in concert with her class experience. The evidence indicates that her self concept, exploratory behavior, and action-orientation have moved in a positive direction.

JOY PHILLIPS' COURSE EVALUATION

My main complaint of the quarter was that the course moved so slowly the first 6 weeks. I feel that Mr. Alf was so concerned with getting everyone in class and telling us what the course was about that time slipped away. For the last 3 to 4 weeks, things have moved at a good pace.

Mr. Alf waited too late to set definite guidelines. If courses were taught like this everywhere, there would be no need for guidelines. Therefore, there must be a plan, and it must be carried out. I felt that a list of books should be given out to help people get started. I also feel that _Summerhill_ and _Walden II_ should be read and discussed in class. The work reports were not hard to do until the hours were increased and I found myself not reading as carefully as I had been.

To promote more class participation, I would suggest an exercise we used in EFN. Ask each person to contribute one point toward the subject, then procede with discussion. This sometimes encourages quiet ones to speak up.

I feel very positively about the method of this course and hope that the idea spreads rapidly. To sum up my evaluation, I feel a definite plan with guidelines be presented at the beginning of the course. Then if people miss tests, etc., let it be their problem, not the classes', to be worked out with instructor. Let the course procede whether people care about it or not. This way the students who are going to benefit the most are not held back. The work reports are a good idea, but I felt a need for more suggestions for reading, etc. & etc.

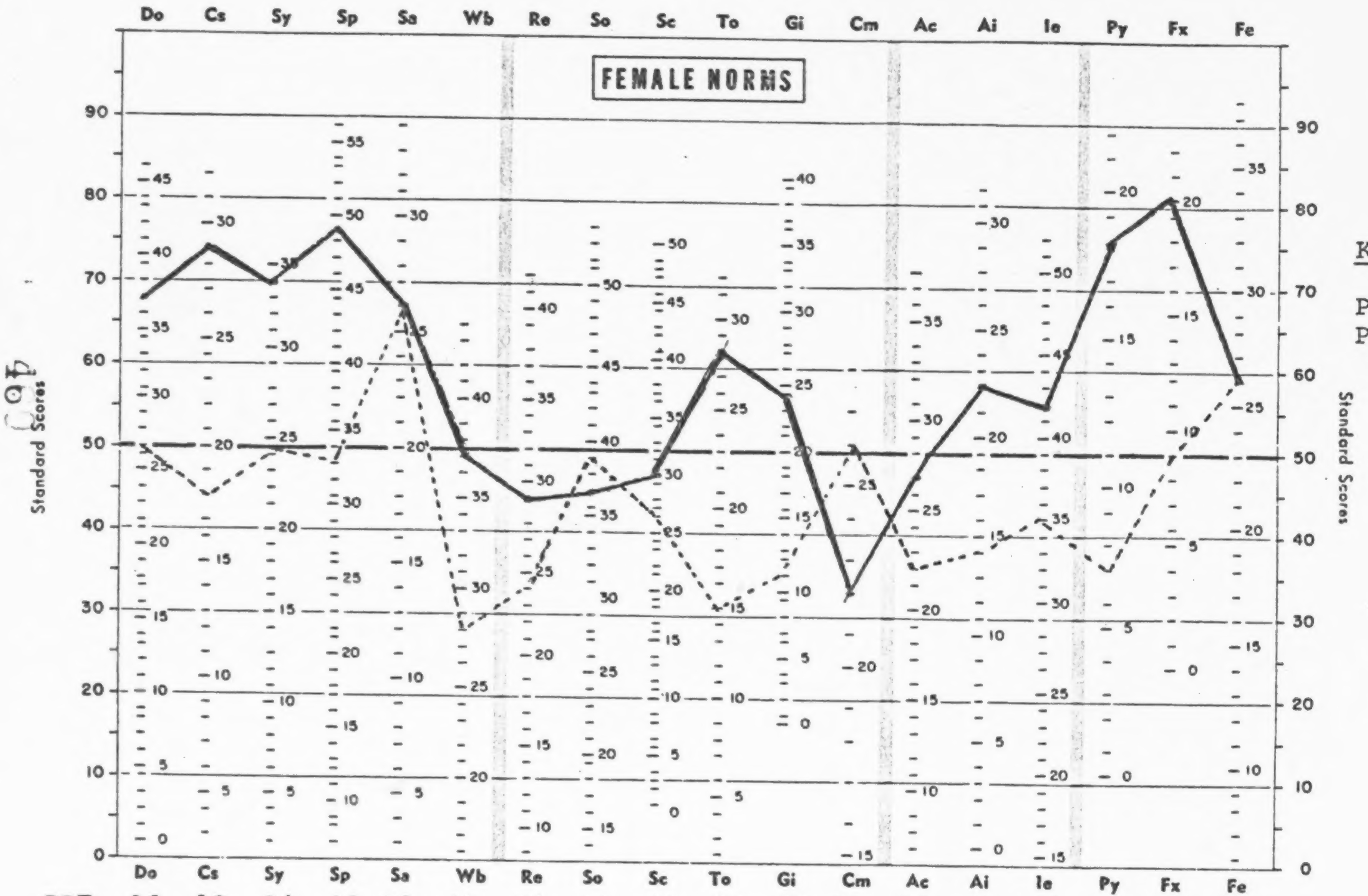
Also, it was way into the course before I grasped the idea of what we were supposed to be "turned on" about. Perhaps the Maslow speech should be introduced much sooner. The small group sessions were great, but again, I was at a loss as to what we were doing for the first few times.

PROFILE SHEET FOR THE *California Psychological Inventory*: FEMALE

Name JOY PHILLIPS Age 27 Date Tested

Other Information

Notes:



Key

Pre-course test:------

Post-course test:———

	Do	Cs	Sy	Sp	Sa	Wb	Re	So	Sc	To	Gi	Cm	Ac	Ai	Ie	Py	Fx	Fe
PRE:	26	18	24	33	26	28	24	39	26	15	11	26	22	14	35	7	9	26
POST:	37	29	34	49	26	37	29	37	30	28	24	22	27	22	42	18	20	26

Female Norm.

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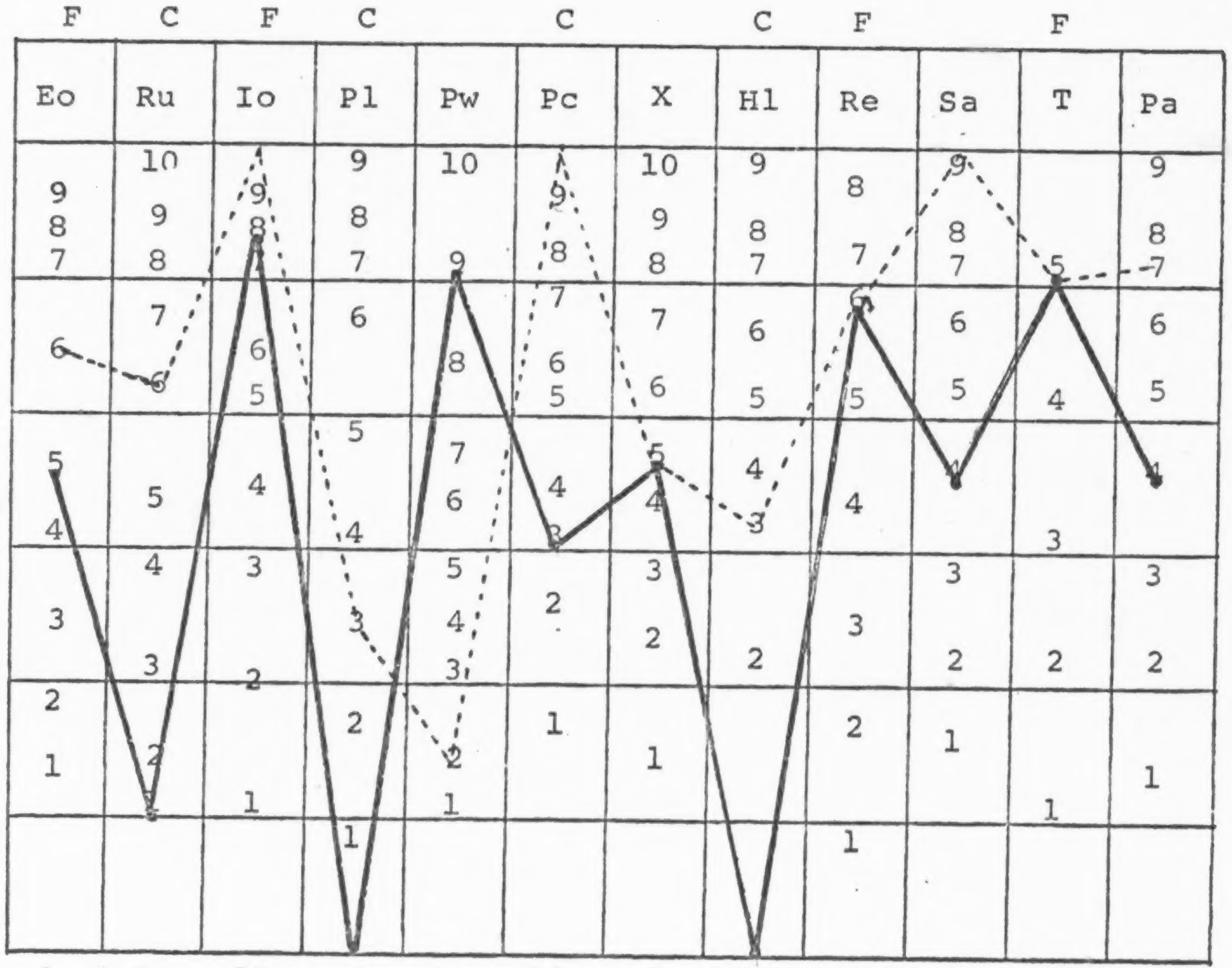
Name JOY PHILLIPS

Date

RUNNER STUDIES OF ATTITUDE PATTERNS
INTERVIEW FORM III

Eo: Experimental Orientation
Io: Intuitive Orientation
Ru: Emphasis on Rules and Tradition
Pl: Practical Planfulness
Pw: Desire for Power and Authority
Pc: Passive Compliance
X: Extroversiveness
Hl: Hostility and Blamefulness
Re: Resistance to Social Pressure
Sa: Social Anxiety
T: Pleasure in Tool-Implemented Hand Skills
Pa: Performance Anxiety



	Eo	Ru	Io	Pl	Pw	Pc	X	Hl	Re	Sa	T	Pa
PRE:	6	6	10	3	2	10	5	3	6	10	5	7
POST:	5	1	8	0	9	3	5	0	6	4	5	4

Key

F = Freedom Orientation
C = Control Orientation
Pre-course test =-----
Post-course test =——

STUDENT HISTORY: JULIA BRYANT

REPORTED BY: SMALL GROUP CONSULTANT (B)

Initial Interview

Julia is a tall, slender, attractive brunette. She is anxious, and openly states that she wants to avoid self disclosure. In private she reveals, "I am very conservative. When I get into an argument, I lose my temper. This embarrasses me and alienates others. I do not wish to change." She goes on to state that her father is a "self-made" businessman, the owner and operator of a small business in a south Georgia town. Her mother helps by keeping the financial records. She is the youngest of three children, with two older brothers. She resembles her father's mother and is very close to her father. She has experienced difficulty recently. She was enrolled in a prestigious northern girls school which she found to be quite a change from being at the top of her class in high school. She left this school after one year. She denies failure, and states that her reason for coming to Georgia is because her father is in poor health and she wants to be close to him. She is presently engaged to be married. Her fiance plans to enter the business world, and she intends to finish college to be a help-mate. Her primary interest is in chemistry, but she has chosen to become a teacher as a matter of expediency. Although she likes children, she feels education courses are a joke.

Final Summary

Julia was able to express herself in the group. She was quite attentive to feedback from other group members. She enjoys interacting with the group. Her initial rejection of the group was transferred to the 304 class. She has considerable difficulty dealing with unstructured material. This experience has confronted her with this basic dependency in her make-up. She has not been able to resolve this. Characteristically, she runs from discomfort. She has resolved to give up education and work for a degree in math. There are too many ambiguities in education. She feels that if she cannot feed back known facts, learning has not taken place. Her greatest concern is for her proposed marriage. She both wants the relationship and fears the uncertainties of marriage.

This experience has done little to alter Julia's basic conflicts. Her level of anxiety is perhaps higher than at the outset. She can and does relate more openly to "strangers" or persons outside of her primary social group. Her life goals appear to be lacking in meaningful direction, and are nebulous to the point of being appreciably unaffected by this course.

NOTE: Julia is not a typical case, but is reported here because she is best remembered. She is still vivid because of her manifest needs and the efforts expended by the leader and other members of the group. Her position was respected in order to assist her in maintaining a feeling of self worth. (In an uncontrolled setting, she would have been "scapegoated", which must happen to her in other settings.)

A COURSE EVALUATION IS NOT AVAILABLE FOR JULIA BRYANT SINCE HER REPORT IS AMONG THE ANONYMOUS SUBMISSIONS.

PROFILE SHEET FOR THE *California Psychological Inventory*: FEMALE

Name JULIA BRYANT

Age

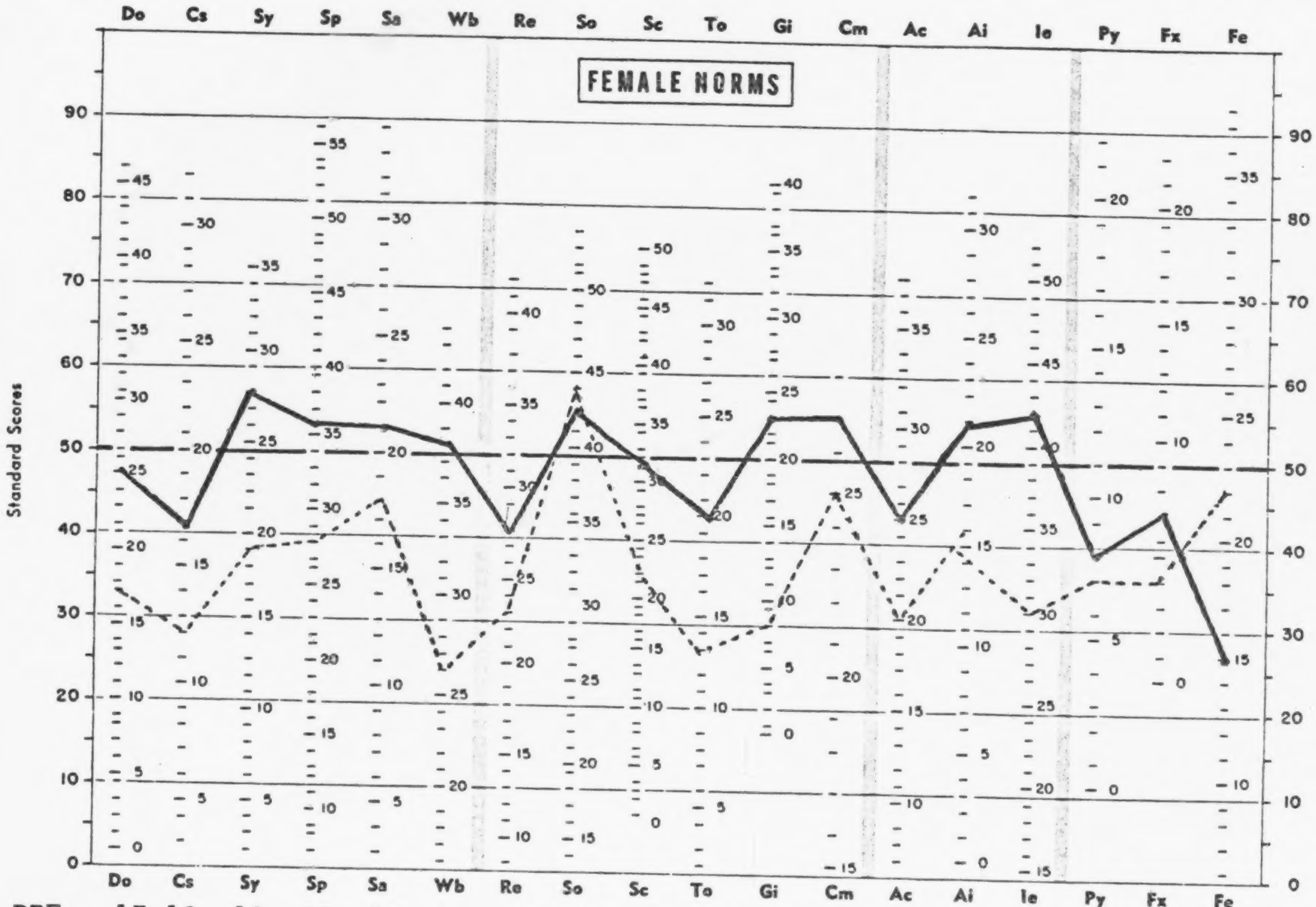
Date Tested

Other Information

Notes:

Key

Pre-course test:
Post-course test:



	Do	Cs	Sy	Sp	Sa	Wb	Re	So	Sc	To	Gi	Cm	Ac	Ai	Ie	Py	Fx	Fe
PRE:	17	12	19	28	18	26	23	44	22	13	8	25	20	16	30	7	4	22
POST:	25	17	28	36	21	38	28	42	31	20	23	27	25	21	42	8	7	15

Female Norms

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Name JULIA BRYANT

Date

RUNNER STUDIES OF ATTITUDE PATTERNS
INTERVIEW FORM III

Eo: Experimental Orientation
Io: Intuitive Orientation
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Pl: Practical Planfulness
Pw: Desire for Power and Authority
Pc: Passive Compliance
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Hl: Hostility and Blamefulness
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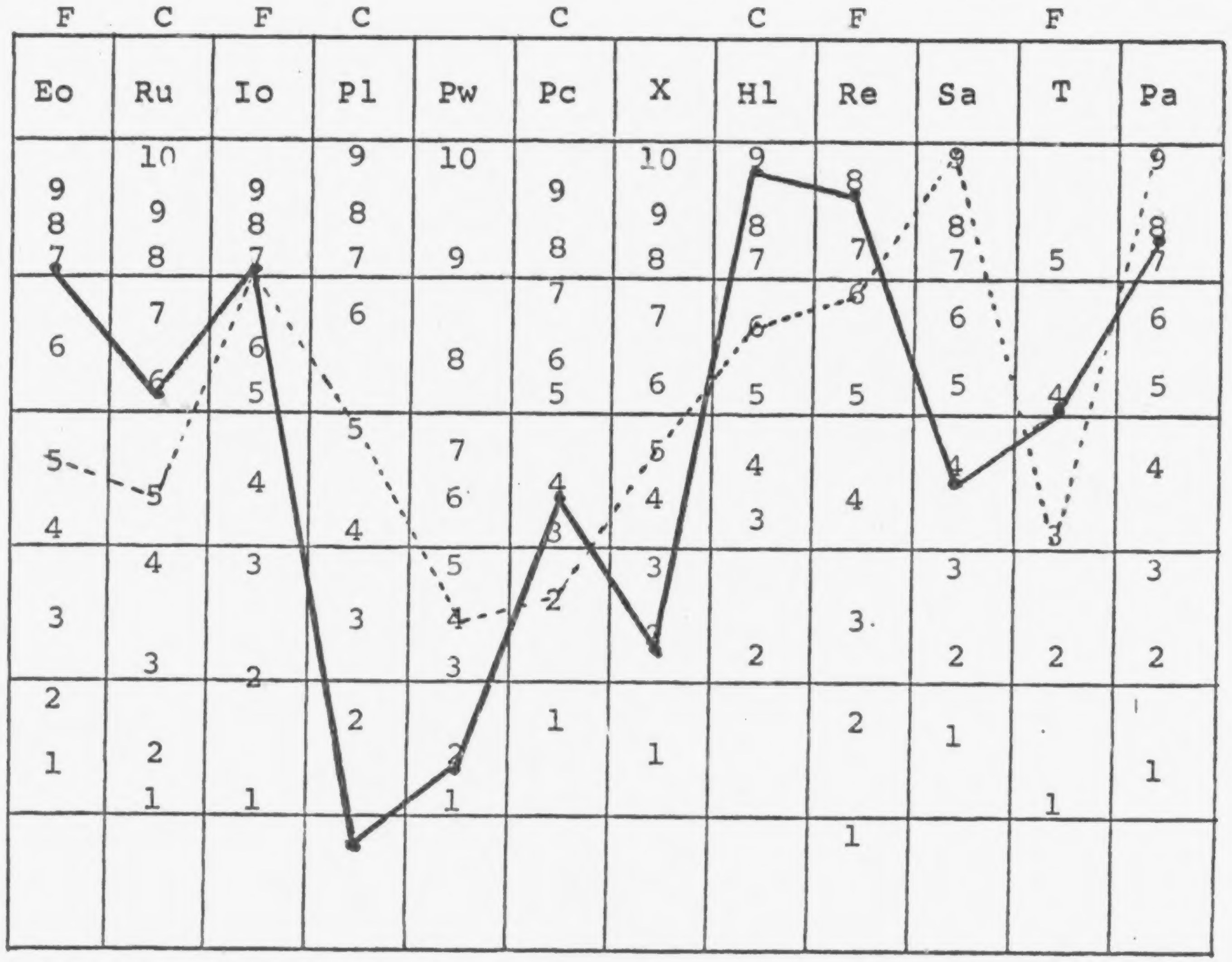
Pa: Performance Anxiety

Key

F = Freedom Orientation
C = Control Orientation
Pre-course test = - - - - - -
Post-course test = ————



	Eo	Ru	Io	Pl	Pw	Pc	X	Hl	Re	Sa	T	Pa
PRE:	5	5	7	5	4	2	5	6	6	9	3	9
POST:	7	6	7	1	2	4	2	9	8	4	4	8

STUDENT HISTORY: MARY JONES

REPORTED BY: SMALL GROUP CONSULTANT (A)

Session One

Mary Jones missed the first session, but she was present for the remaining four.

Session Two

I had spoken only briefly with Miss Jones previous to this session. If by virtue of her normal behavior, or by design, with an attending awareness of the group dynamics present, Miss Jones, with ease and modified silence, slipped into the group this evening. She had little to say other than very calmly making appropriate verbal responses when called upon by the flow of activities. My immediate feeling about her was that she was present merely because of the habit of being present at places she was called upon to be. Her outward calmness almost seemed to approach the apathy one finds when he is merely going through the motions of a necessary function, i.e., when he is really devoid of any real interest in the activity.

Session Three

Mary opened up tonight. Her outward calmness was maintained--it's her pattern of response. However, many inner concerns, unsureness of self particularly, came out. In this session, we gave honest evaluations of each other, and in response to everyone's comment about how self-confident she seemed, Mary presented an opposite picture. Her outward composure and lack of involvement were a cover for fear of self-assertion. My impression was that here was someone who honestly wanted to find sincere personal meaning, but was hampered by a fear of trying. In her quiet way, she was really reaching out.

Session Four

Mary is caught in turmoil tonight. She's made the decision--a reflective and weighed decision--that she agrees totally with the present student movement on campus. However, she's caught by guilt, because she thinks she hasn't outwardly stood up for her conviction; the fear of criticism is strong; the struggle for courage is overwhelming. She needs to practice self-assertion--the first step is the hardest to take.

Session Five

I decided to use a socio-drama tonight involving a conflict situation, where the actresses would have to make difficult decisions "on their feet" so-to-speak. Although there were multiple reasons for using the technique, it was also a practice session at assertion for Mary. She handled herself swiftly and decisively and marveled at her ability to do so. She later commented that this activity had been of tremendous value to her. My inclination is to believe that since the last session, she had already made the necessary growth, with or without the drama. It merely provided her the first opportunity to see herself in action. Of course, the fact that it was not a totally real situation allowed some psychological safety for taking the first step.

Mary made tremendous growth. She did much of it on her own and possibly would have anyway without the class. However, it did provide a catalyst and at the same time a cultural island that offered a degree of safety for experimenting with new forms of behavior.

MARY JONES' COURSE EVALUATION

Last quarter, winter quarter, began a new phase in my life. I was "turned on," so to speak, to finding out about myself. One person who I was with a great deal of the time (a psych. grad. student) made me begin to think about the importance of self awareness.

Naturally, when I found out the nature of the course, and the way it was to be taught, I really got excited, because I thought this was a way of finding self-awareness.

The course has made a big impression on me. I have enjoyed the non-structure of it.

About three weeks into the course, I became doubtful as to whether it was working or not. I, myself, became irritated with the structured parts of it, such as being required to be in class, and being required to work ten hours a week. I thought it was contradictory to the whole idea of the course.

But as time went on, I realized that the more I put into it, the more I got out of it. Thus, self-direction seems to be quite effective for me if I take advantage of the freedom.

The small group meetings have been particularly good for me. I felt no inhibitions and learned much from the close interaction. True feedback about oneself is vital to his self-development.

The different speakers we had during the quarter was something else that made the course exciting. They provoked much thought. It was very stimulating, and that is something I need--stimulation. I thought more this quarter than I've ever thought before. I felt so much more like a "real, live person."

After this course I know myself better, and I will certainly use the "self-concept" in my teaching career. It's one of the most important things in life to know oneself.

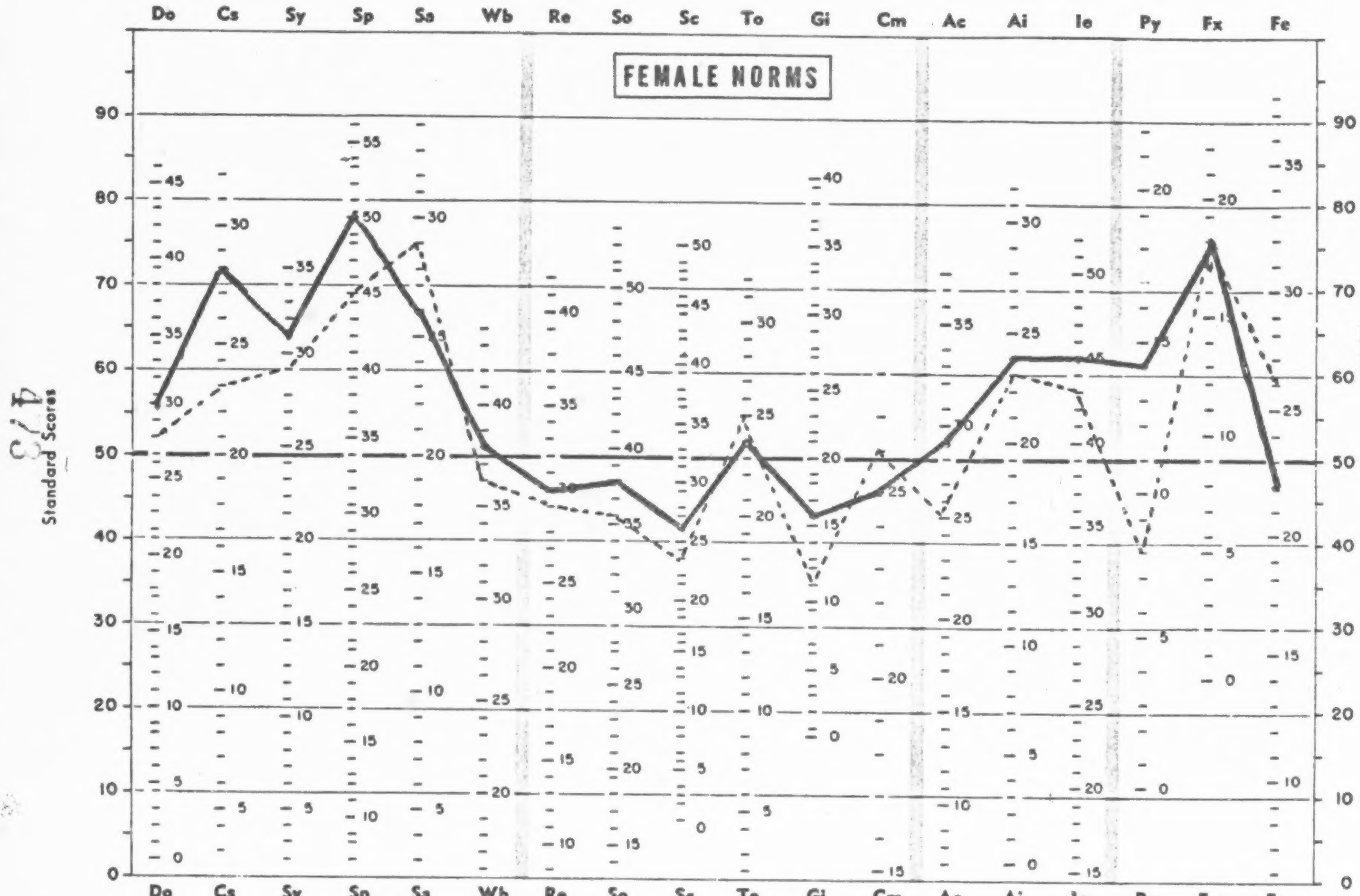
REACTION: Good Experience -- hope I can continue it.

PROFILE SHEET FOR THE *California Psychological Inventory*: FEMALE

Name MARY JONES Age _____ Date Tested _____

Other Information _____

Notes:



Key

Pre-course test:------

Post-course test:————

	Do	Cs	Sy	Sp	Sa	Wb	Re	So	Sc	To	Gi	Cm	Ac	Ai	Ie	Py	Fx	Fe
PRE:	27	23	29	45	29	36	29	36	23	25	11	26	25	23	43	8	18	26
POST:	30	28	31	50	26	38	30	38	26	24	16	25	29	24	45	14	18	22

Female Norms

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Name MARY JONES

Date

RUNNER STUDIES OF ATTITUDE PATTERNS
INTERVIEW FORM III

Eo: Experimental Orientation
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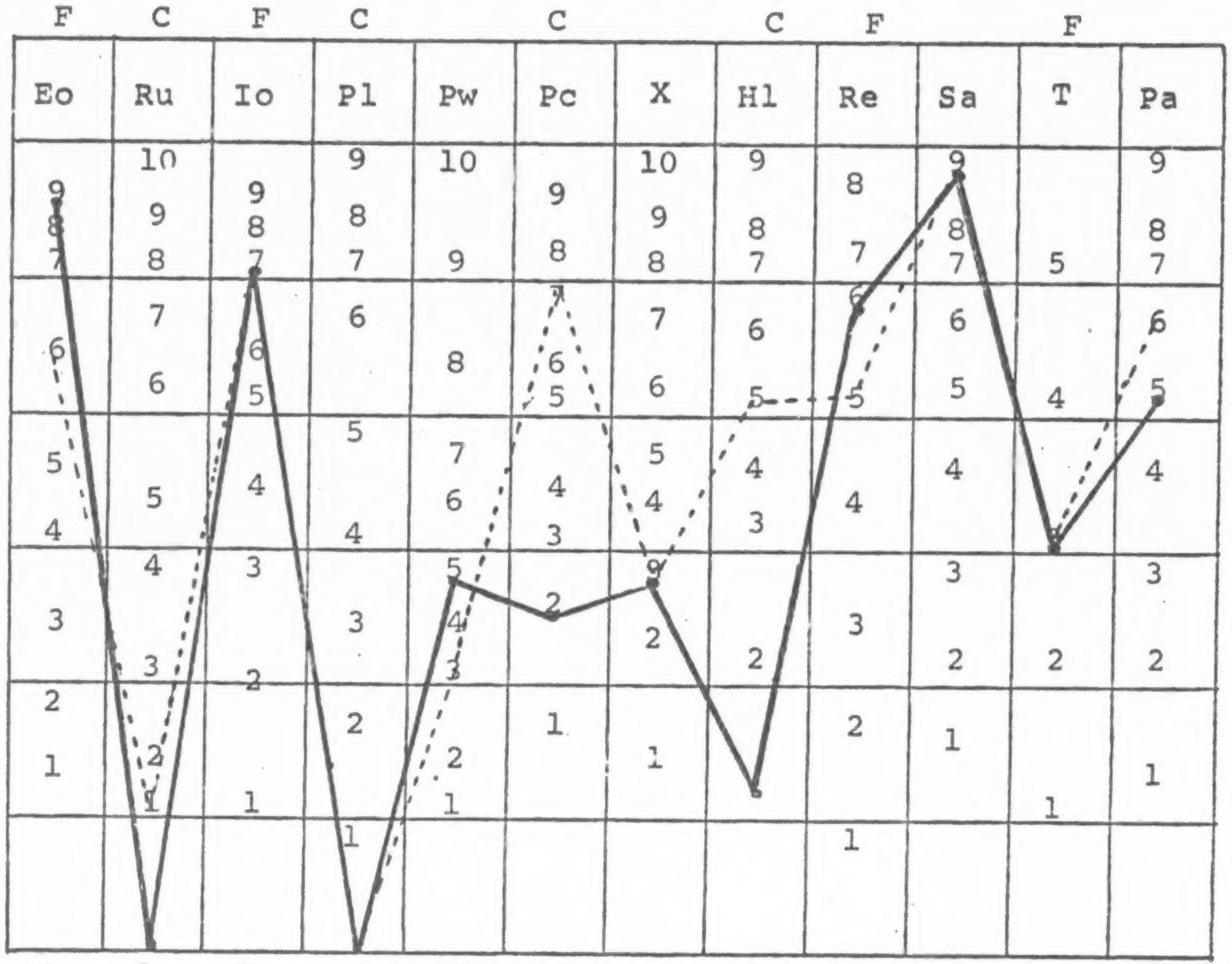
Key

F = Freedom Orientation
C = Control Orientation
Pre-course test =-----
Post-course test =———



	Eo	Ru	Io	Pl	Pw	Pc	X	Hl	Re	Sa	T	Pa
PRE:	6	1	7	0	3	7	3	5	5	9	3	6
POST:	9	0	7	0	5	2	3	1	6	9	3	5

APPENDIX F

STUDENT EVALUATIONS OF STRUSD
EDUCATION TREATMENT A

The evaluations were received by a student committee elected to direct the evaluation proceedings. In advance of writing evaluations, students were assured by the committee that their evaluations would not be given to the instructor until after the course grades were posted. Nevertheless, the students were given the privilege of anonymity in their evaluations. Of the evaluations here included, evaluations 2, 4, 5, and 6 were not signed.

The first three papers were randomly selected; the last three papers were chosen by the researcher to represent the most extreme viewpoints toward the course experience.

STUDENT EVALUATION ONE

(A Random Selection)

This Educational Psychology class has really been a unique experience. I must admit there have been times when I disliked this course, yet overall I am very grateful for it.

During the first few weeks of the class, I felt that we were just going about in never ending circles. We were supposed to be self directing our course and I didn't know which way to direct myself. I must admit that my confusion about teaching had always secretly existed. Time to read, and think for myself was really just what I wanted to do. Now I'm gung-ho on teaching, and not even chemistry can stop me!

The idea of a self directed course is a very good one. I really enjoyed reading and thinking what I wanted to read and think for a change. Because of this freedom, I feel that I have learned more in this class than someone who would have a lecture course in Educational Psychology. I have read material that I might never have gotten around to reading had I not had this freedom. I developed an interest in Gestalt Therapy and the Logotherapy and several different teaching techniques.

Another thing I liked about this course was the guest speakers. I think that you can learn something from everyone you meet, and we certainly met a wide variety of people.

The small group experience was very meaningful to me because I find it much easier to be myself there. I am grateful for the insight into our personalities. I think that the small group idea should be incorporated into many other courses.

The only complaint that I had with the course was the work report. I really got to where I hated to have to do one. Maybe the reason for my dislike of the reports lies in the fact that I got behind a few hours and just couldn't seem to make up the reading time. I spent much more time thinking about things related to the course than I ever put down on any work report. After I finally did go to the library and read some of the books Mr. Alf had on reserve, I found that they were just as interesting as the books that I had selected for myself in this course. I had thought that they would be dull, and I hated to have to go sit in the library for two hours when I prefer to read at my dorm. I found some of the books to be so good that I just couldn't bear to put them down, especially Education and Ecstasy. I will not have time to read all of the reserve books before the quarter ends, but I have already made my summer reading list and I do intend to read them.

If this course had done nothing for me but widen my reading interests I would be grateful. Yet, it has done much more. Before, I was content to say I was going to do something; now I do something. Thanks for the chance to do it alone, Alf. I wish I could have turned on my light earlier in the course of my life.

STUDENT EVALUATION TWO

(A Random Selection)

Educational Psychology 304 will definitely be one of the college courses that I will not soon forget. I must admit that I was rather skeptical of all education courses before enrolling in this course. I had heard the usual comments about education courses in general, "It's Spring Quarter, you want to take something easy, why not sign up for an education course if they're not already filled. Anyway, education courses are just a bunch of common sense." I must admit that I have definitely changed my attitude toward education courses and education in general.

Through the efforts of the instructor, this course has been changed from an extremely boring 100 minute lecture course into a lesson in human growth and understanding. I have learned what other people felt about education, but even more important, I have solidified my beliefs about education. Education does not have to be the monotonous exchange of lectures on the part of the teacher and recapitulation on the part of the student. It can be something dynamic, something the student is interested in, rather than merely what the instructor is interested in.

However, the most important accomplishment of this course has been its effect on me, my life and thinking. I have learned to break out of my little microcosm and become involved. I have learned that my opinion about anything is just as good as anybody else's, as long as I have satisfied my own mind on how I stand. Also, I have learned to accept other people's opinions and test them against my own opinion.

My development has been greatly affected by this course. I have finally come to realize that this is my life and I must satisfy my own goals and needs on the basis of what I want, not what other people want me to want. And I hope that I can instill this attitude into my students in future years--this is your life, it is the only life that you will have, therefore live it to the fullest.

STUDENT EVALUATION THREE

(A Random Selection)

1 - The programmed text was not suitable and should be replaced by a standard text.

2 - The class objectives in regard to work-sheets should be changed. Perhaps letting the class write a short summary in class over each article or book read would work out better. Having to write down time and what you have learned is very hard. Many times you don't get the meaning of a book until it has been completed.

3 - Lectures at night in auditorium should be optional. They were not helpful at all.

4 - Existentialism should not be a required text; it is too deep to try and cover in two weeks. A text on the meaning of life or on a subject voted on by the class would be more helpful.

5 - Small group meetings should be continued and increased if possible. This is where the strength of the course lies. You learn to be honest, open, and learning in these groups.

6 - Some different type of grading system should be used. Final by department shouldn't count at all although telling group this might make them relax in this department. Small

groups should be graded in some way since most everyone benefited from them. Reserve articles is a good idea and is helpful. Maybe points could be given for each article that has been read.

7 - Keep class size down a little more.

8 - This type of approach will work, but it still has flaws. It should become even more self-directed.

STUDENT EVALUATION FOUR

(A Researcher Selection)

For the first time in my educational process, I have been able to think in a course. For the first time I have not only been able to think, but have been encouraged to do so. This course in Educational Psychology is a stimulation to my intellect rather than a fact sheet of information to be learned, tested on, and then to do with as I please.

I have had a tremendously valuable experience throughout this quarter by attending Mr. Alf's course. I feel I have been pushed into expanding my mind, expanding my life, and my life's goals. I have met a person who is concerned about me, who cares about me, and at the same time still trusts me enough to choose my own ways.

The course does have its faults. The faults, however, lie with the students and not the teacher. After persistent prodding, encouragement, and at times almost pleading, many students still stubbornly refused to be released from a structured thought pattern and move into a new, stimulating and exciting intellectual freedom. Perhaps this opportunity came too late.

I personally was subconsciously waiting for this chance to think. I needed the encouragement and push to get me going. Herb Alf pushed.

As far as the learning of Educational Psychology is concerned, I feel I have learned as many facts and figures as any course could have taught me, but in addition, I have learned so much more . . . "man's search for meaning."

STUDENT EVALUATION FIVE

(A Researcher Selection)

I think subject matter and individual expanding should be combined. I think Educational Psychology itself is important enough to have some time devoted it by a teacher who is better qualified than the students to guide them in the subject.

I also think the course would be more successful if the teacher were explosive and exciting as the inner-directed people I have known, such as ministers, etc. The electricity of this type personality would be transmitted to the students. They would at least want to know what could make a person this electrifying.

STUDENT EVALUATION SIX

(A Researcher Selection)

I feel that this course has very good intentions, but that such a structure should be handled in a different way. A truly self-directed course would be a wonderful thing, but this course isn't truly self-directed. There are students who will be stimulated to do the work and those who will not be. No course can be expected to be meant for every student in a class this large.

Making the student show a work report doesn't mean anything. One can lie about it or he can really do it. Merely making the student write down every minute he spends in the course doesn't mean he's really doing it and nothing can make him do it if he doesn't want to. For some students the instructor has failed to be the motivator in this course. The subject matter has also failed to be stimulating. But as for changes, there are none. For if one changes the course for one, he will deprive the other student. Like I said, this course wasn't meant for everybody and one can't expect everyone to benefit the same from it. I feel that the work reports are the biggest waste of valuable time I've ever experienced. I feel that a ten hour or twelve hour work week is ridiculous. I feel those tests at the beginning of the quarter should be eliminated, and I wish the instructor would not harp on attendance and punctuality so much. You can't force a person to do anything. If so, they feel threatened and though they may come, they will grow to hate the course more. I feel that more flexibility in this area is needed even if it just shows that the instructor trusts the student enough to let the student decide the best thing to do. I will not be forced to do anything. If I want to do something, I'll do it and enjoy it. If I am forced to do something, I'll do it and hate it and try to forget about it as soon as possible. The really only self-directed part of this course is allowing the student to read what he wants to and to talk about what he wants to (if the instructor isn't rambling on with his hand over his mouth which is the way he speaks on many occasions). I did find the consultations very rewarding and also the group meetings. I wish my group leader could have been my instructor. I really could have torn this class up. It's too bad this class had to be so large. I did, however, learn from this course--I learned what not to do if I ever teach.

ADDENDA

The following is a final note submitted by the anonymous writer of "Student Evaluation Six" after the last session of the course. The final note was signed. The student later revealed the authorship of the student evaluation, and the style of the handwriting unavoidably identifies the mutual origin.

Dear Herb,

I came by just to "chew the rag" a little. I didn't get finished talking with you this morning in class. There was a lot of reaction after class that I feel you might be interested in. I'd like to talk to you about these reactions, my self-concept and you. People really benefited from the intercourse this morning, and many told me that they wished the course had just begun. But what has begun will continue inside people. You've lit some fires in people and you should feel proud. Nobody walked out of the class this morning with the same attitude they had before. I include myself. The impact of this course will not lose its ferver in people. In the south, if you can move people at all you've accomplished something and you've done more. I speak not only for myself, but for our class. I am sympathetic with you because you are trying to move mountains and that is hard to do with such a limited working force. But with every course you teach you contribute to the force and they contribute to yours in helping you to move that mountain. Don't let yourself be frustrated. Do what you can for people and acknowledge the fact that you can't get to everybody and that a few will not let themselves be moved. For some this course is over, for some it has just begun.